

**Historic, Arch**

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United States  
Department of  
Agriculture

Natural  
Resources  
Conservation  
Service

# Washington Basin Outlook Report May 1, 1997





# Basin Outlook Reports and Federal - State - Private Cooperative Snow Surveys

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## *How forecasts are made*

Most of the annual streamflow in the Western United States originates as snowfall that has accumulated high in the mountains during winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Predictions are based on careful measurements of snow water equivalent at selected index points. Precipitation, temperature, soil moisture and antecedent streamflow data are combined with snowpack data to prepare runoff forecasts. Streamflow forecasts are coordinated by Natural Resources Conservation Service and National Weather Service hydrologists. This report presents a comprehensive picture of water supply conditions for areas dependent upon surface runoff. It includes selected streamflow forecasts, summarized snowpack and precipitation data, reservoir storage data, and narratives describing current conditions.

Snowpack data are obtained by using a combination of manual and automated SNOTEL measurement methods. Manual readings of snow depth and water equivalent are taken at locations called snow courses on a monthly or semi-monthly schedule during the winter. In addition, snow water equivalent, precipitation and temperature are monitored on a daily basis and transmitted via meteor burst telemetry to central data collection facilities. Both monthly and daily data are used to project snowmelt runoff.

Forecast uncertainty originates from two sources: (1) uncertainty of future hydrologic and climatic conditions, and (2) error in the forecasting procedure. To express the uncertainty in the most probable forecast, four additional forecasts are provided. The actual streamflow can be expected to exceed the most probable forecast 50% of the time. Similarly, the actual streamflow volume can be expected to exceed the 90% forecast volume 90% of the time. The same is true for the 70%, 30%, and 10% forecasts. Generally, the 90% and 70% forecasts reflect drier than normal hydrologic and climatic conditions; the 30% and 10% forecasts reflect wetter than normal conditions. As the forecast season progresses, a greater portion of the future hydrologic and climatic uncertainty will become known and the additional forecasts will move closer to the most probable forecast.

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# Washington Water Supply Outlook

## April 1997

### General Outlook

The March snowpack and precipitation accumulated at near twice the normal rate in Washington. April 1 basin averages remain much above average. Streamflow levels also remain higher than average. Spring and summer streamflows are forecast to be above normal. The National Weather Service is predicting a high probability of spring flooding for most of the state. New snowpack and precipitation records continue to be set at SNOTEL sites in Washington. Reservoir managers continue to work feverishly in anticipation of a heavy spring runoff.

### Snowpack

The April 1 statewide SNOTEL readings remain well above average at 159%. Snowpack varied from near to much above average throughout the state, with the Olympic Peninsula River Basin SNOTEL reporting the lowest with 104% of average, and the Walla Walla River Basin the highest at 174% of average. Westside averages from SNOTEL and April 1 snow surveys included the North Puget Sound river basins with 133% of average, the Olympic Peninsula basins with 106%, and the Lewis-Cowlitz basins with 159% of average. Snowpack along the east slopes of the Cascade Mountains included the Yakima area with 163%, and the Wenatchee area with 154%. Snowpack in the Spokane River Basin was at 160%, and the Pend Oreille River Basin, including Canadian data, had 148% of average. Maximum snow cover in Washington was at Paradise Park SNOTEL on Mt. Rainier, with a water content of 108 inches. This site would normally have 62.1 inches of water content on April 1. The highest average in the state was Tinkham Creek SNOTEL near the Cedar River with 271% of average. The lowest snowpack in the state was at the Spirit Lake SNOTEL near Mt. St. Helens with 0.8 inches of snow-water-equivalent. Spirit Lake would normally have 3.6 inches on April 1.

BASIN	PERCENT OF LAST YEAR	PERCENT OF AVERAGE
Spokane.....	229 .....	160
Colville.....	267 .....	168
Pend Oreille.....	147 .....	148
Okanogan.....	126 .....	134
Conconully Lake.....	161 .....	155
Methow.....	117 .....	144
Similkameen.....	116 .....	126
Wenatchee.....	166 .....	154
Chelan.....	127 .....	148
Stemilt Creek.....	142 .....	123
Yakima.....	204 .....	163
Ahtanum Creek.....	181 .....	146
Walla Walla.....	216 .....	174
Cowlitz.....	203 .....	146
Lewis.....	305 .....	171
White.....	178 .....	142
Green.....	313 .....	160
Cedar .....	527 .....	202
Snoqualmie .....	317 .....	145
Skykomish .....	259 .....	152
Skagit.....	156 .....	148
Baker.....	417 .....	140
Olympic Peninsula.....	458 .....	106



## Precipitation

The National Weather Service and Natural Resources Conservation Service climate stations during the month of March showed much above average precipitation for all basins in Washington. The highest percent of average in the state was at Pigtail Peak SNOTEL site near White Pass, Washington. Pigtail Peak reported 403% of average for a total of 28.9 inches. Average for this site is 7.17 inches for March. Averages for the water year varied from 122% of average in the Okanogan - Methow to 162% of average in the Walla Walla River basins. The highest average for the water year is 193% of average at Mill Creek Dam near Walla Walla.

BASIN	MARCH PERCENT OF AVERAGE	WATER YEAR PERCENT OF AVERAGE
Spokane.....	175	145
Colville-Pend Oreille.....	189	139
Okanogan-Methow.....	158	122
Wenatchee-Chelan.....	252	137
Yakima.....	253	161
Walla Walla.....	163	162
Cowlitz-Lewis.....	191	143
White-Green.....	199	149
Central Puget Sound.....	240	151
North Puget Sound.....	225	141
Olympic Peninsula.....	176	124

## Reservoir

Reservoir storage in Washington varied greatly due to fluctuating runoff and flood control management. Reservoir storage in the Yakima Basin was 727,900 acre feet or 98% of average. Storage at other reservoirs included Roosevelt at 92% of average, and the Okanogan reservoirs with 123% of average for April 1. The power generation reservoirs included the following: Coeur d'Alene Lake, 307,300 acre feet, or 181% of average; Chelan Lake, 189,800 acre feet, 89% of average and 28% of capacity; and Ross Lake at 247% of average and 52% of capacity. Greater than average releases continued from most reservoirs across the state. These numbers may change dramatically over the next few months in preparation for spring runoff and flood control.

BASIN	PERCENT OF CAPACITY	PERCENT OF AVERAGE
Spokane.....	129	181
Colville-Pend Oreille.....	33	92
Okanogan-Methow.....	78	123
Wenatchee-Chelan.....	28	89
Yakima.....	68	98
North Puget Sound.....	52	247

*For more information contact your local Natural Resources Conservation Service office.*

Streamflow

Forecasts for summer streamflow are mostly for well above average. They vary from 114% of average for the Cowlitz at Castle Rock to 180% of average for the Spokane near Post Falls. April forecasts for some Western Washington streams include: Cedar River near Cedar Falls, 137%; Green River, 132%; and the Dungeness River, 124%. Some Eastern Washington streams include the Yakima River near Parker, 153%; the Wenatchee River at Peshastin, 148%; and the Colville River at Kettle Falls, 156%. Volumetric forecasts increased for most all streams in Washington over last month. Increases are associated with greater than average March snowpack and precipitation accumulation.

March streamflows varied from well above to near average. The South Fork of the Walla Walla River near Milton Freewater was the highest at 362% of average; and the Methow River at Pateros, with 102% of average, was the lowest in the state. Other streamflows were the following percentage of average: the Cowlitz River, 183%; the Skagit River, 180%; the Okanogan River, 206%; the Spokane River, 178%; the Columbia at the Canadian border, 161%, and the Yakima River at Cle Elum, 206%.

BASIN  
PERCENT OF AVERAGE  
MOST PROBABLE FORECAST  
(50 PERCENT CHANCE OF EXCEDENCE)

Spokane.....	172-180
Colville-Pend Oreille.....	119-156
Okanogan-Methow.....	135-148
Wenatchee-Chelan.....	135-148
Yakima.....	146-168
Walla Walla.....	118-155
Cowlitz-Lewis.....	114-168
White-Green.....	132
Central Puget Sound.....	129-147
North Puget Sound.....	130-133
Olympic Peninsula.....	124

STREAM  
PERCENT OF AVERAGE  
MARCH STREAMFLOWS

Pend Oreille Bl. Box Canyon.....	150
Kettle at Laurier.....	140
Columbia at Birchbank.....	161
Spokane at Long Lake.....	178
Similkameen at Nighthawk.....	148
Okanogan at Tonasket.....	206
Methow at Pateros.....	102
Chelan at Chelan.....	161
Wenatchee at Pashastin.....	174
Yakima at Cle Elum.....	206
Yakima at Parker.....	192
Naches at Naches.....	187
Yakima at Kiona.....	182
Grande Ronde at Troy.....	214
Snake bl. Lower Granite.....	177
SF Walla Walla nr. Milton Freewater.....	362
Columbia at The Dalles.....	166
Lewis at Ariel.....	168
Cowlitz bl. Mayfield Dam.....	183
Skagit at Concrete.....	180



# BASIN SUMMARY OF SNOW COURSE DATA

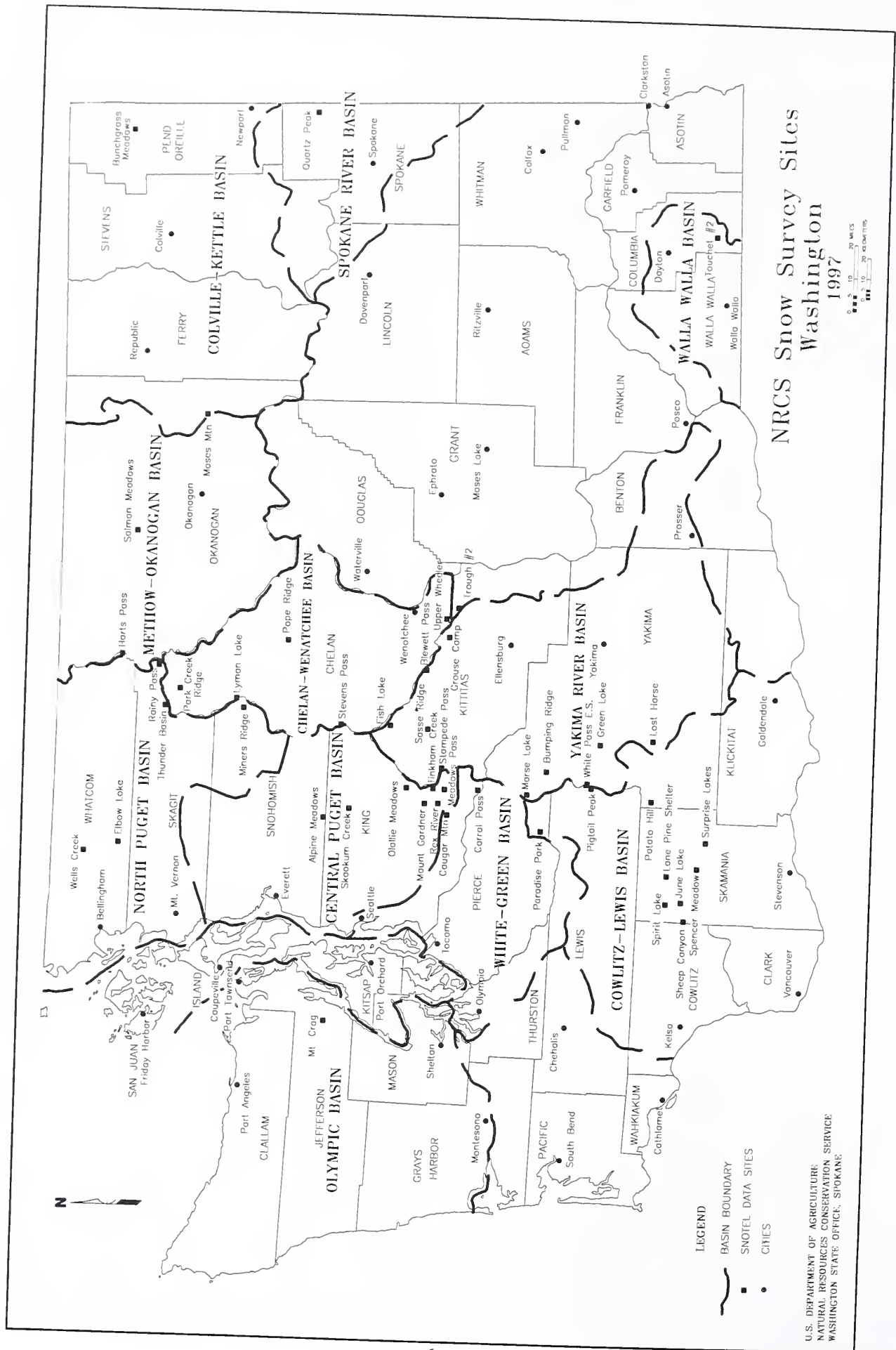
APRIL 1997

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90	SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90
ABERDEEN LAKE CAN.	4000	3/26/97	28	8.3	7.2	5.7	HAMILTON BILL CAN.	4550	4/02/97	51	18.3	14.3	14.7
ABOVE ROLAND	4350	3/31/97	124	52.0	20.4	32.3	HAND CREEK	5030	3/31/97	56	20.6	11.2	13.6
ALPINE MEADOWS	3500	3/26/97	133	60.2	16.3	43.7	HAND CREEK PILLOW	5030	4/01/97	---	20.5	12.1	13.3
ALPINE MEADOWS PILL	3500	4/01/97	---	67.8S	22.1	---	HARTS PASS PILLOW	6500	4/01/97	---	54.3S	53.0	41.3
AMBROSE	6480	3/29/97	56	19.7	12.0	13.2	BEART LAKE TRAIL	4800	3/26/97	90	33.6	16.6	21.6
ASHLEY DIVIDE	4820	3/28/97	36	12.3	8.5	6.6	BELL ROARING DIVIDE	5770	3/27/97	107	40.2	30.9	31.0
BADGER PASS PILLOW	6900	4/01/97	---	46.3	39.2	36.5	BERRIG JUNCTION	4850	3/27/97	98	39.2	28.9	26.0
BARRE CREEK	5500	3/25/97	137	59.9	36.0	45.3	BIGH RIDGE PILLOW	4980	4/01/97	---	36.6S	17.7	24.4
BARRE MIDWAY	4600	3/25/97	123	51.6	23.5	35.1	BOLBROOK	4530	3/28/97	50	17.0	9.0	9.0
BARRE TRAIL	3800	3/25/97	47	17.5	6.1	8.4	BOODOO BASIN PILLOW	6050	4/01/97	---	70.8	52.0	47.0
BARKER LAKES PILLOW	8250	4/01/97	---	18.7	15.3	15.4	BOODOO CREEK	5900	3/26/97	166	66.4	44.0	46.3
BARNES CREEK CAN.	4950	3/29/97	74	30.2	24.7	20.4	BUMBOLDT GLCB PILLOW	4250	4/01/97	---	17.8	7.0	13.3
BASIN CREEK PILLOW	7180	4/01/97	---	10.4	9.0	8.7	BURRICANE	4500	3/30/97	63	24.6	2.3	22.1
BASSOO PEAK	5150	3/27/97	44	16.5	8.6	11.3	INTERGAARD	6450	3/26/97	36	12.1	6.7	8.6
BEAVER CREEK TRAIL	2200	3/31/97	70	27.9	3.8	11.6	ISINTOK LAKE CAN.	5100	3/26/97	30	8.0	8.1	7.1
BEAVER PASS	3680	3/31/97	107	41.0	15.7	29.7	JUNE LAKE PILLOW	3200	4/01/97	---	56.4S	10.9	36.3
BERNE-MILL CREEK (d)	3170	3/31/97	114	43.3	24.0	27.2	KELLOGG PEAK	5560	4/01/97	109	44.1	22.8	31.6
BIG CREEK	6750	4/02/97	148	59.8	45.8	45.7	KISBENEHN	3890	3/28/97	46	14.3	7.9	7.0
BIG WHITE MTN CAN.	5100	3/29/97	72	25.9	20.9	18.9	KIT CARSON PASTURE	4950	3/28/97	34	13.1	8.9	8.8
BLACK MOUNTAIN	7750	4/02/97	60	19.7	14.4	16.3	KLESILKWA CAN.	3450	4/02/97	54	20.8	---	11.9
BLACK PINE PILLOW	7100	4/01/97	---	18.0	16.1	12.7	KRAFT CREEK PILLOW	4750	4/01/97	---	28.7	14.1	15.3
BLACKWALL PEAK CAN.	6370	4/01/97	---	42.5	34.0	33.8	KROMONA MINE	2400	4/01/97	104	44.2	---	33.8
BLEWETT PASS #2	4270	3/24/97	56	22.8	11.9	15.1	LESTER CREEK	3100	4/01/97	104	41.0	11.2	23.3
BLEWETT PASS#2PILLOW	4270	4/01/97	---	24.2E	13.2	17.8	LIGHTNING LAKE CAN.	3700	4/01/97	52	18.2	13.1	12.4
BLUE LAKE	5900	3/30/97	76	30.1	19.3	25.3	LOGAN CREEK	4300	3/31/97	51	10.7	8.2	7.1
BRENDA MINE CAN.	4450	4/01/97	---	19.6	13.1	12.8	LOLO PASS PILLOW	5240	4/01/97	---	51.7	33.9	32.3
BRIEF	1600	3/27/97	20	9.6	2.4	2.5	LONE PINE PILLOW	3800	4/01/97	---	60.7S	19.6	32.1
BROOKMERE CAN.	3000	3/31/97	38	11.7	10.3	8.3	LOOKOUT PILLOW	5140	4/01/97	---	49.9	26.0	33.4
BROWN TOP AM	6000	3/31/97	199	78.4	52.2	59.6	LOST BORSE	5940	3/27/97	113	43.1	28.8	32.3
BRUSH CREEK TIMBER	5000	3/31/97	37	12.3	6.0	9.5	LOST HORSE MTN CAN.	5850	4/01/97	37	10.3	13.0	9.3
BULL MOUNTAIN	6600	3/26/97	25	9.8	6.9	6.4	LOST BORSE PILLOW	5000	4/01/97	---	31.0S	16.4	26.4
BUMPING LAKE (NEW)	3400	3/27/97	81	34.7	13.2	18.3	LOST LAKE PILLOW	6110	4/01/97	---	97.9	58.9	63.2
BUMPING RIDGE PILLOW	4600	4/01/97	---	51.7S	18.0	21.2	LOWER SANDS CREEK #2	3120	3/31/97	94	37.0	12.2	19.6
BUNCBGRASS MDWPILLOW	5000	4/01/97	---	48.7	22.0	26.6	LUBRECHT FOREST NO 3	5450	3/28/97	33	10.4	5.8	6.8
BUTTE CREEK	4070	3/28/97	35	11.3	7.7	9.0	LUBRECHT FOREST NO 4	4650	3/28/97	13	4.1	1.2	2.1
CAMP MISERY	6400	4/01/97	---	80.8E	43.0	49.0	LUBRECHT FOREST NO 6	4040	3/28/97	18	6.3	1.8	2.3
CARMI CAN.	3800	3/30/97	24	7.9	5.7	5.9	LUBRECHT HYDROPLT	4200	3/31/97	24	8.5	4.3	4.2
CAYUSE PASS	5300	4/01/97	---	90.0E	52.3	82.4	LUBRECHT PILLOW	4680	4/01/97	---	7.7	4.3	5.1
CEDAR GROVE	3760	3/27/97	63	24.8	7.2	12.2	LYMAN LAKE PILLOW	5900	4/01/97	---	82.0S	67.1	56.9
CHESSMAN RESERVOIR	6200	3/24/97	11	3.3	1.7	3.9	LYNN LAKE	4000	4/01/97	81	33.0	5.0	22.0
CHEWALAH	4930	3/27/97	70	26.6	10.3	16.1	MARIAS PASS	5250	3/27/97	68	30.0	17.1	17.4
CHICKEN CREEK	4060	3/27/97	72	27.4	16.8	14.0	MARTEN LAKE AM	3600	4/01/97	---	90.0E	26.0	73.4
CHIAWAUKUM G.S.	2500	3/31/97	43	16.8	11.0	8.9	MCCULLOCH CAN.	3900	3/27/97	28	8.1	5.7	6.3
CITY CABIN	2390	3/26/97	46	23.2	6.6	13.6	MEADOWS CABIN	1900	4/02/97	33	13.0	0	4.8
COLOCKUM PASS	5370	3/25/97	57	22.4	14.9	16.5	MEADOWS PASS PILLOW	3240	4/01/97	---	45.8S	8.9	24.9
COMBINATION PILLOW	5600	4/01/97	---	7.0	5.4	5.8	MERRITT	2140	3/31/97	57	22.6	11.5	12.8
COPPER BOTTOM PILLOW	5200	4/01/97	---	19.3	12.0	11.7	MICA CREEK PILLOW	4750	4/01/97	---	46.8	16.9	---
COPPER CREEK	5700	3/31/97	51	19.8	14.8	14.2	MINERAL CREEK	4000	3/27/97	79	30.6	17.6	17.5
COPPER MOUNTAIN	7700	3/28/97	49	17.1	13.2	11.4	MISSEZULA MTN CAN.	4700	4/01/97	37	12.0	9.9	9.3
CORNER CREEK	3150	3/27/97	45	16.8	2.1	6.1	MISSION CREEK CAN.	5800	3/26/97	71	25.8	21.4	20.4
CORRAL PASS PILLOW	6000	4/01/97	---	55.3S	31.1	32.6	MISSION RIDGE	5000	3/29/97	64	22.3	15.6	16.5
COUGAR MTN. PILLOW	3200	4/01/97	---	37.8S	6.6	18.8	MONASBEE PASS CAN.	4200	3/29/97	52	20.4	16.1	13.6
COX VALLEY	4500	3/29/97	124	49.3	15.9	39.5	MOOSE CREEK PILLOW	6200	4/01/97	---	31.1	24.0	18.0
COYOTE HILL	4200	3/28/97	51	19.0	8.0	9.5	MORRISSEY RIDGE CAN.	6100	4/01/97	---	40.7	32.8	28.6
DALY CREEK PILLOW	5780	4/01/97	---	19.0	11.3	11.9	MORSE LAKE PILLOW	5400	4/01/97	---	85.5S	46.0	47.2
DEER PARK	5200	3/27/97	44	17.3	6.8	20.9	MOSES MTN PILLOW	4800	4/01/97	---	17.8S	15.0	15.5
DESERT MOUNTAIN	5600	3/30/97	60	23.7	14.8	15.5	MOSQUITO RDG PILLOW	5200	4/01/97	---	56.1	31.1	37.3
DEVILS PARK	5900	4/01/97	138	55.0	42.8	42.9	MOULTON RESERVOIR	6850	3/26/97	35	12.8	9.2	6.8
DISCOVERY BASIN	7050	3/26/97	49	16.6	12.2	11.3	MOUNT CRAG PILLOW	4050	4/01/97	---	32.8S	16.7	31.5
DIX HILL	6400	3/29/97	38	14.0	11.5	11.3	MT. KOBAY CAN.	5500	3/28/97	44	14.8	12.2	12.7
DOMMERIE FLATS	2200	3/28/97	28	11.0	0	4.3	MT. GARDNER	3300	3/27/97	72	31.3	3.1	14.1
EAST FORK R.S.	5400	3/28/97	29	10.4	4.4	5.6	MT. GARDNER PILLOW	2860	4/01/97	---	29.2S	4.7	14.0
EAST RAGGED SADDLE	3740	3/29/97	78	34.4	8.5	20.4	MUTTON CREEK #1	5700	3/31/97	48	17.5	12.3	13.2
EL DORADO MINE	7800	4/01/97	80	25.7	23.3	21.6	N.F. ELK CR PILLOW	6250	4/01/97	---	17.8	14.0	13.2
ELBOW LAKE PILLOW	3200	4/01/97	---	59.4S	7.2	44.0	NEVADA CREEK PILLOW	6480	4/01/97	---	21.2	16.8	13.4
EMERY CREEK	4350	3/30/97	67	28.4	15.1	15.7	NEW BOZOMEN LAKE	2800	4/02/97	54	20.2	4.3	10.4
EMERY CREEK PILLOW	4350	4/01/97	---	24.7	10.5	16.3	NEZ PERCE CMP PILLOW	5650	4/01/97	---	23.7	17.1	15.1
ENDERBY CAN.	5800	3/31/97	124	48.4	44.9	38.9	NEZ PERCE PASS	6570	3/28/97	68	23.6	15.6	17.1
ESPERON CK. MID CAN.	4250	3/29/97	53	18.1	14.5	14.3	NOISY BASIN PILLOW	6040	4/01/97	---	68.8E	41.1	40.7
ESPERON CK. UP CAN.	5050	3/29/97	59	21.1	15.4	17.0	NORTB FORK JOCKO	6330	4/02/97	152	64.1	48.0	44.9
FARRON CAN.	3700	3/26/97	48	17.6	13.5	13.3	OLALLIE MDWS PILLOW	3960	4/01/97	---	93.3S	33.5	53.5
FATTY CREEK	5500	4/02/97	114	44.5	22.1	24.3	OLALLIE MEADOWS	3630	4/01/97	---	78.1E	20.4	44.8
FISB CREEK	8000	3/26/97	41	13.3	9.5	9.9	OLNEY PASS	3250	4/01/97	86	40.2	---	25.6
FISB LAKE	3370	3/27/97	120	49.5	26.9	31.4	OPBIR PARK	7150	3/29/97	58	21.4	17.8	18.0
FISB LAKE PILLOW	3370	4/01/97	---	54.6S	34.5	31.9	OYAMA LAKE CAN.	4100	3/30/97	30	10.0	8.6	6.4
FLATTOP MTN PILLOW	6300	4/01/97	---	65.7	52.7	47.1	PALISADE CREEK	8250	4/01/97	102	42.3	41.1	29.9
FLEECER RIDGE	7500	3/26/97	47	17.5	15.0	11.3	PARADISE PARK PILLOW	5500	4/01/97	---	108.0S	56.4	62.1
FOURTB OF JULY SUM	3200	3/24/97	46	16.2	2.2	6.8	PARK CK RIDGE PILLOW	4600	4/01/97	---	72.8S	50.6	41.6
FRED BURR PASS	8000	3/26/97	85	32.2	32.2	25.4	PETERSON MDW PILLOW	7200	3/27/97	---	14.4	9.8	11.0
FREEZEOUT CK. TRAIL	3500	4/02/97	51	20.0	4.8	11.5	PITTAIL PEAK PILLOW	5900	4/01/97	---	97.6S	52.9	49.3
FROHNER MDWS PILLOW	6480	4/01/97	---	9.6	8.8	8.7	PIKE CREEK	5930	3/25/97	97	38.2	25.0	26.7
GIBBONS PASS	7100	3/28/97	91	32.0	30.2	23.2	PIKE CREEK PILLOW	5930	4/01/97	---	42.2	30.7	27.9
GOAT CREEK	3600	3/28/97	18	5.9	2.1	4.3	PIPESTONE PASS	7200	3/26/97	24	8.0	5.4	5.9
GOLD CREEK LAKE	7200	4/01/97	63	20.1	16.0	15.9	POPE RIDGE PILLOW	3540	4/01/97	---	31.0S	23.9	15.7
GRANITE PEAK	6000	4/02/97	159	64.7	38.6	43.5	POSTILL LAKE CAN.	4200	3/27/97	35	11.3	10.3	8.7
GRASS MOUNTAIN #2	2900	4/01/97	41	17.4	0	15.9	POTATO BILL PILLOW	4500	4/01/97	---	39.1S	18.1	25.3
GRAVE CRK PILLOW	4300	4/01/97	---	24.9	15.4	16.7	QUARTZ PEAK PILLOW	4700	4/01/97	---	36.1	12.0	21.9
GRAYSTOKE LAKE CAN.	5500	3/26/97	51	18.0	13.0	16.2	ROUND TOP MTN	4020	3/26/97	49	20.5	---	---
GREEN LAKE	6000	4/01/97	---	61.9E	35.4	33.9	RAGGED RIDGE	3330	3/26/97	38	14.9	0	3.5
GREEN LAKE PILLOW	6000	4/01/97	---	37.8S	21.6	20.7	RAINY PASS PILLOW	4780	4/01/97	---	56.4S	51.4	38.0
GREYBACK RES CAN.													



SNOW COURSE	ELEVATION	DATE	SNOW	WATER	LAST	AVERAGE
			DEPTH	CONTENT		
					YEAR	1961-90
SADDLE MTN PILLOW	7900	4/01/97	---	39.2	35.5	26.1
SAGE CREEK SADDLE	4080	3/27/97	86	34.9	9.4	17.8
SALMON MDWS	4500	4/01/97	---	17.9S	9.9	9.4
SASSE RIDGE	4200	4/01/97	---	61.4S	30.6	32.1
SAVAGE PASS	6170	4/01/97	---	38.0	28.7	27.2
SAWMILL RIDGE	4700	4/01/97	153	64.8	19.7	36.3
SCHREIBERS MDW	3400	4/01/97	---	88.2E	15.0	58.8
SHEEP CANYON	4050	4/01/97	---	41.0S	8.4	39.8
SILVER STAR MTN CAN.	5600	3/28/97	93	35.7	30.4	28.6
SKALKAH0 PILLOW	7260	4/01/97	---	39.5	32.1	24.9
SKITWISH RIDGE	5110	3/31/97	126	54.1	18.2	31.3
SKOOKUM CREEK PILLOW	3920	4/01/97	---	44.3S	1.7	46.4
SLIDE ROCK MOUNTAIN	7100	3/30/97	59	19.9	15.0	16.7
SPENCER MDW	3400	4/01/97	---	51.7S	18.3	29.6
SPIRIT LAKE	3100	4/01/97	---	.8S	.0	3.6
SPOTTED BEAR MTN.	7000	3/30/97	59	22.4	15.7	14.9
STAHL PEAK PILLOW	6030	4/01/97	---	49.2	47.2	35.1
STAMPEDE PASS PILLOW	3860	4/01/97	---	62.1S	34.8	44.4
STEMILT SLIDE	5000	3/27/97	44	15.0	10.7	12.8
STEMPLE PASS	6600	3/25/97	44	13.8	8.2	10.6
STEVENS PASS	4070	4/01/97	---	68.6S	31.1	42.3
STEVENS PASS SAND SD	3700	3/31/97	131	52.9	22.8	33.7
STICKNEY RIDGE	3640	4/01/97	165	49.7	--	68.2
STORM LAKE	7780	3/27/97	57	18.0	12.8	14.0
STRANGER MOUNTAIN	4230	3/27/97	52	20.9	7.5	12.2
STRYKER BASIN	6180	3/27/97	113	44.5	38.1	34.6
STUART MOUNTAIN	7400	4/02/97	125	50.9	43.1	32.9
SUMMERLAND RES CAN.	5050	3/27/97	41	13.3	10.1	9.1
SUMMIT G.S.	4600	3/28/97	41	12.0	6.8	8.1
SUNSET	5540	4/01/97	---	47.9	24.5	37.6
SURPRISE LKS	4250	4/01/97	---	74.3S	31.0	44.2

SNOW COURSE	ELEVATION	DATE	SNOW	WATER	LAST	AVERAGE
			DEPTH	CONTENT		
					YEAR	1961-90
TEN MILE LOWER	6600	3/24/97	30	8.7	5.7	7.8
TEN MILE MIDDLE	6800	3/24/97	46	13.8	11.5	12.2
THUNDER BASIN	4200	4/02/97	95	36.8	13.6	21.7
TINKHAM CREEK PILLOW	3000	4/01/97	---	54.0S	19.1	19.9
TOGO	3370	4/01/97	---	18.3E	6.8	10.8
TOUCHE#2	5530	4/01/97	---	61.3	27.6	31.9
TRAPPING CK LOW CAN.	2850	3/30/97	17	4.9	4.5	3.1
TRAPPING CK UP CAN.	4100	3/29/97	35	11.3	5.9	8.3
TRINKUS LAKE	6100	3/30/97	164	67.5	40.8	43.4
TROUGH #2	5310	4/01/97	---	12.0S	13.0	9.7
TROUT CREEK	5650	3/29/97	33	10.2	9.1	6.9
TRUMAN CREEK	4060	3/30/97	27	9.0	4.8	3.5
TUNNEL AVENUE	2450	3/26/97	89	31.6	13.5	20.8
TV MOUNTAIN	6800	4/02/97	82	29.6	20.4	19.2
TWELVEMILE PILLOW	5600	4/01/97	---	31.9	14.3	18.6
TWIN CAMP	4100	4/01/97	104	40.4	17.3	25.1
TWIN CREEKS	3580	3/30/97	54	21.3	9.6	10.3
TWIN LAKES PILLOW	6400	4/01/97	---	65.9	43.0	40.4
TWIN SPIRIT DIVIDE	3480	3/29/97	64	24.7	7.3	13.9
UPPER HOLLAND LAKE	6200	3/30/97	128	53.0	34.5	35.4
UPPER WHEELER PILLOW	4400	4/01/97	---	17.5S	12.2	13.6
VASEUX CREEK	4250	3/27/97	24	7.3	5.8	6.3
WARM SPRINGS PILLOW	7800	4/01/97	---	31.2	29.9	22.3
WATSON LAKES	4500	4/01/97	---	97.3E	25.0	64.9
WEASEL DIVIDE	5450	4/01/97	---	47.2E	35.9	33.8
WELLS CREEK	4200	4/01/97	---	43.1S	16.0	51.0
WHITE PASS ES PILLOW	4500	4/01/97	---	40.3E	17.5	22.9
WHITE ROCKS MTN CAN.	7200	4/01/97	70	25.1	19.7	23.0

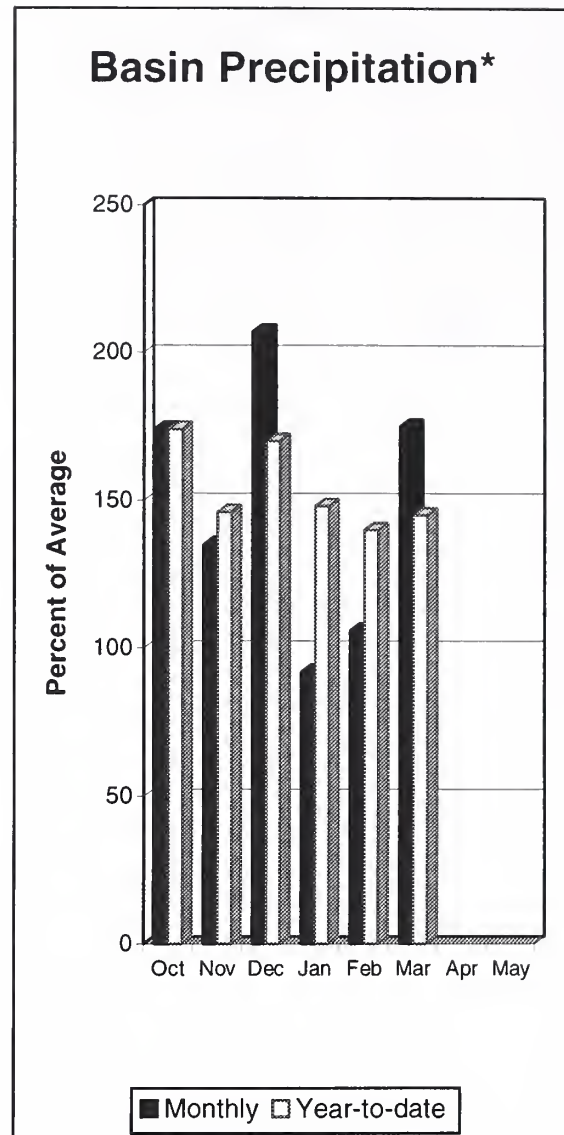
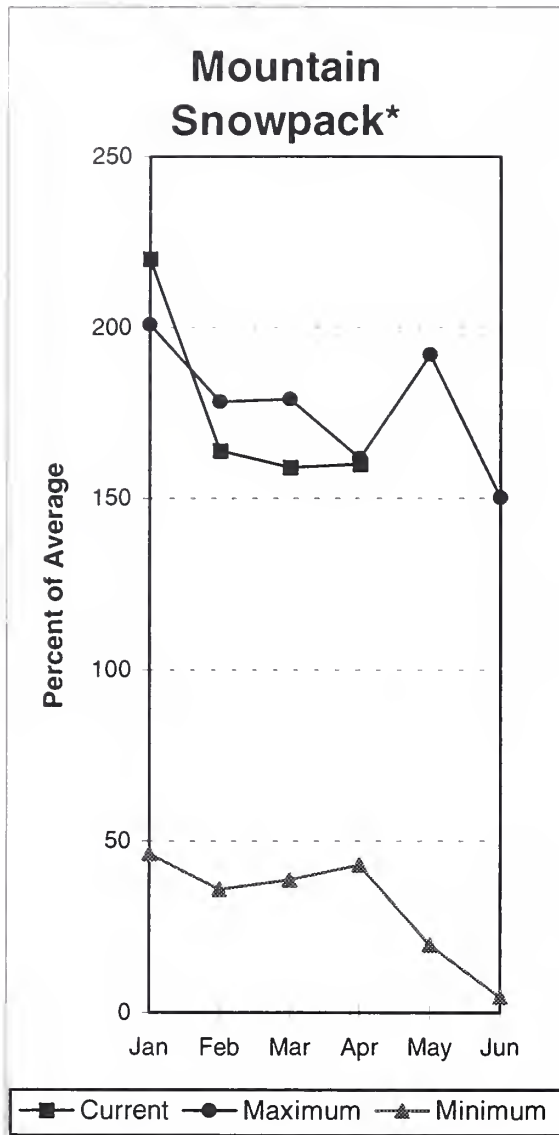


U.S. DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE  
WASHINGTON STATE OFFICE, SPOKANE





# Spokane River Basin



\*Based on selected stations

The April 1 forecasts for summer runoff within the Spokane River Basin are 180% of average near Post Falls and 172% of average at Long Lake. The forecast is based on a basin snowpack that is 160% of average and precipitation that is 145% of average for the water year. Precipitation for March was near normal at 175% of average. Streamflow on the Spokane River at Long Lake was 178% of average for March. April 1 storage in Coeur d'Alene Lake was 307,300 acre feet, 181% of average, and 129% of capacity. Snowpack at Quartz Peak SNOTEL site contained 30.4 inches of water, compared to the average April 1 reading of 18.6 inches. Snowpack at Ragged Ridge snow course in the Newman Lake Basin was measured to have 14.9 inches of water in 38 inches of snow depth on March 26. Normal for this site is 3.5 inches of water.

For more information contact your local Natural Resources Conservation Service office.



# Spokane River Basin

## Streamflow Forecasts - April 1, 1997

SPOKANE near Post Falls (2)	APR-SEP	4468	4737	4920	180	5103	5372	2730
	APR-JUL	4259	4522	4700	179	4878	5141	2633
SPOKANE at Long Lake	APR-JUL	4563	4853	5050	172	5247	5537	2936
	APR-SEP	4935	5236	5440	172	5644	5945	3159

## SPOKANE RIVER BASIN Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage ***		
		This Year	Last Year	Avg
COEUR D'ALENE	238.5	307.3	141.7	170.1

## SPOKANE RIVER BASIN Watershed Snowpack Analysis - April 1, 1997

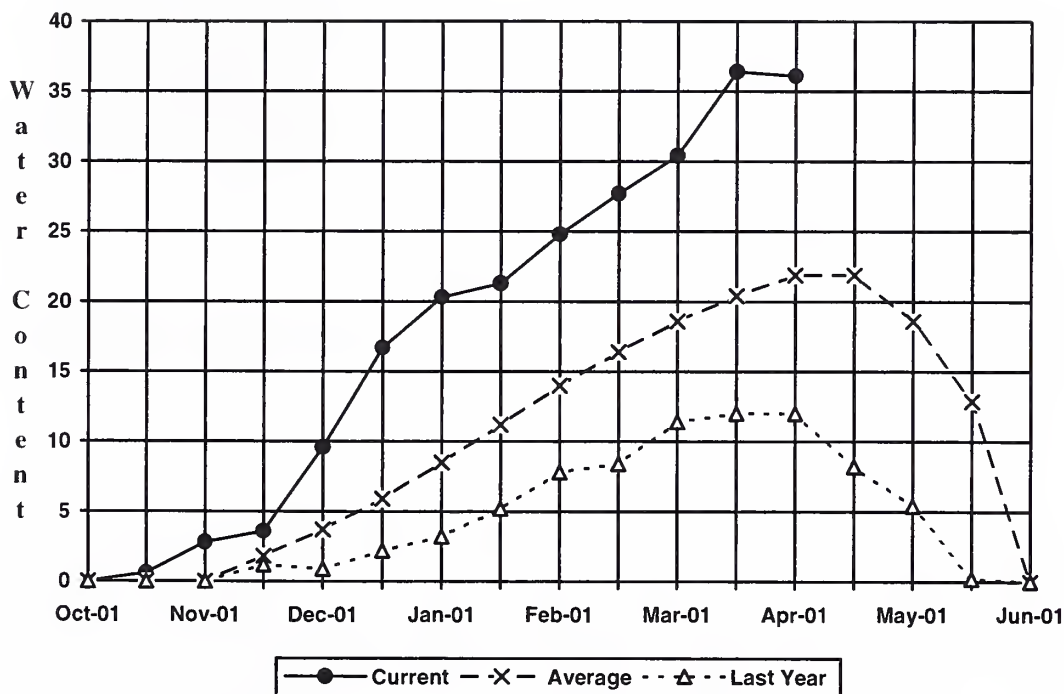
Watershed	Number of Data Sites	This Year as % of	
		Last Yr	Average
SPOKANE RIVER	19	229	160
NEWMAN LAKE	2	425	201

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

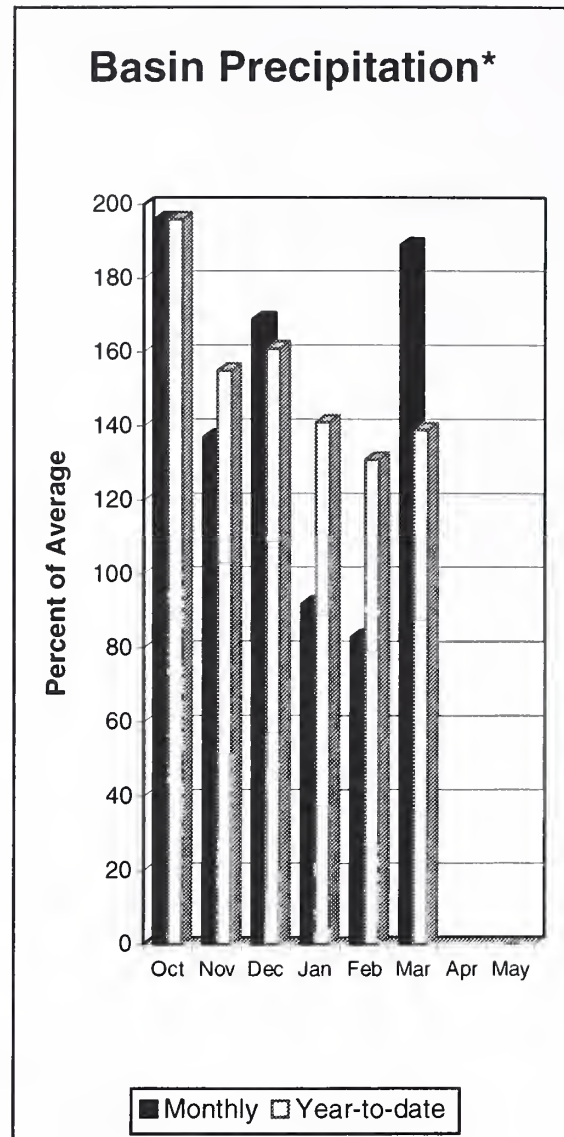
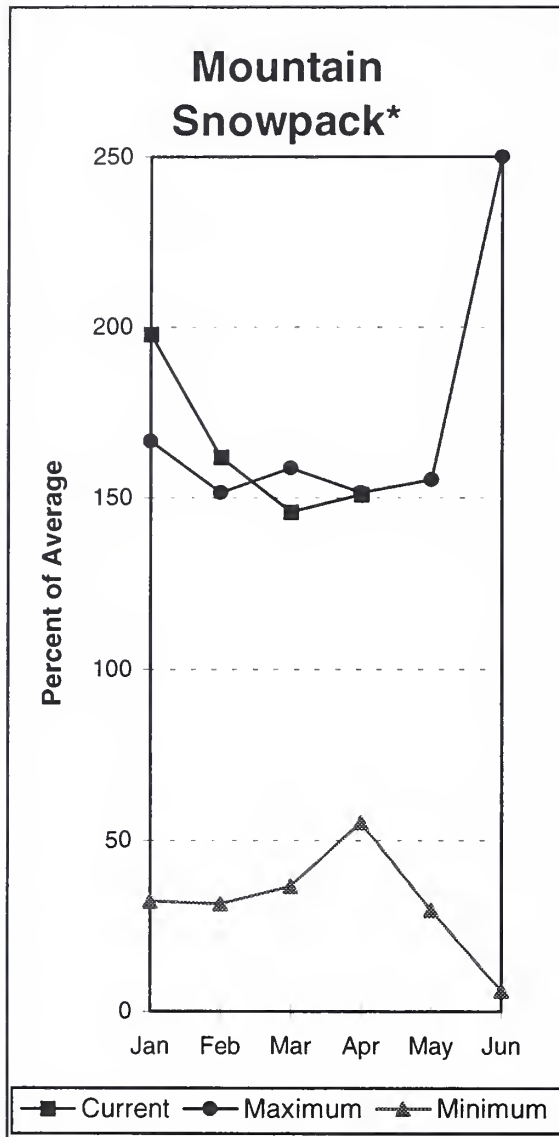
The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

## Quartz Peak SNOTEL Elevation 4700 ft.



## Colville - Pend Oreille River Basins



\*Based on selected stations

The forecast for the Kettle River streamflow is for 148% of average; the Pend Oreille, below Box Canyon, 145%; and the Priest River, near the town of Priest River, 142% of average for the summer runoff period. The forecast for the Columbia River at Birchbank is for runoff to be 119% of average. March streamflow was 150% of average on the Pend Oreille River, 161% on the Columbia at the International Boundary, and 140% on the Kettle River. April 1 snow cover was 148% of average in the Pend Oreille Basin, 137% of average in the Kettle River Basin and 168% of average in the Colville River Basin. Precipitation during March was 189% of average, bringing the year-to-date precipitation to 139% of average. Reservoir storage in Roosevelt and Banks lakes was reported to be 92% of average and 33% of capacity on March 1.

For more information contact your local Natural Resources Conservation Service office.



# Colville - Pend Oreille River Basins

## Streamflow Forecasts - April 1, 1997

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
PEND OREILLE Lake Inflow (1,2)	APR-JUL	16548	18372	19200	146	20028	21852	13150
	APR-SEP	18098	20094	21000	146	21906	23902	14370
	APR-JUN	14125	15848	16630	146	17412	19135	11390
PRIEST nr Priest River (1,2)	APR-JUL	943	1085	1150	141	1215	1357	814
	APR-SEP	1009	1161	1230	142	1299	1451	868
PEND OREILLE b1 Box Canyon (1,2)	APR-JUL	16970	18641	19400	145	20159	21830	13380
	APR-SEP	18548	20372	21200	145	22028	23852	14590
	APR-JUN	14709	16147	16800	145	17453	18891	11570
CHAMOKANE CREEK near Long Lake	MAY-AUG	9.41	11.59	13.06	153	14.53	16.71	8.52
COLVILLE at Kettle Falls	APR-SEP	168	189	204	156	219	240	131
	APR-JUL	155	175	188	157	201	221	120
	APR-JUN	145	162	174	157	186	203	111
KETTLE near Laurier	APR-SEP	2455	2625	2740	148	2855	3025	1854
	APR-JUL	2349	2499	2600	148	2701	2851	1761
	APR-JUN	2124	2255	2345	148	2435	2566	1585
COLUMBIA at Birchbank (1,2)	APR-JUL	37408	40291	41600	118	42909	45792	35140
	APR-SEP	46649	50260	51900	119	53540	57151	43810
	APR-JUN	27266	29352	30300	118	31248	33334	25670
COLUMBIA at Grand Coulee Dm (1,2)	APR-SEP	74852	80730	83400	129	86070	91948	64850
	APR-JUL	62832	67761	70000	128	72239	77168	54543
	APR-JUN	49115	52956	54700	128	56444	60285	42756

### COLVILLE - PEND OREILLE RIVER BASINS Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage ***		
		This Year	Last Year	Avg
ROOSEVELT	5232.0	1306.4	1971.5	1586.0
BANKS	715.0	680.5	648.0	583.0

### COLVILLE - PEND OREILLE RIVER BASINS Watershed Snowpack Analysis - April 1, 1997

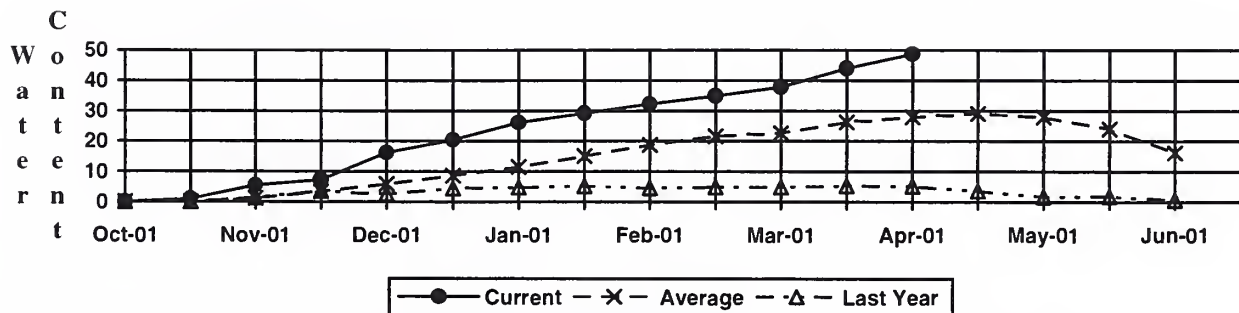
Watershed	Number of Data Sites	This Year as % of	
		Last Yr	Average
COLVILLE RIVER	3	267	168
PEND OREILLE RIVER	107	147	148
KETTLE RIVER	11	137	137

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

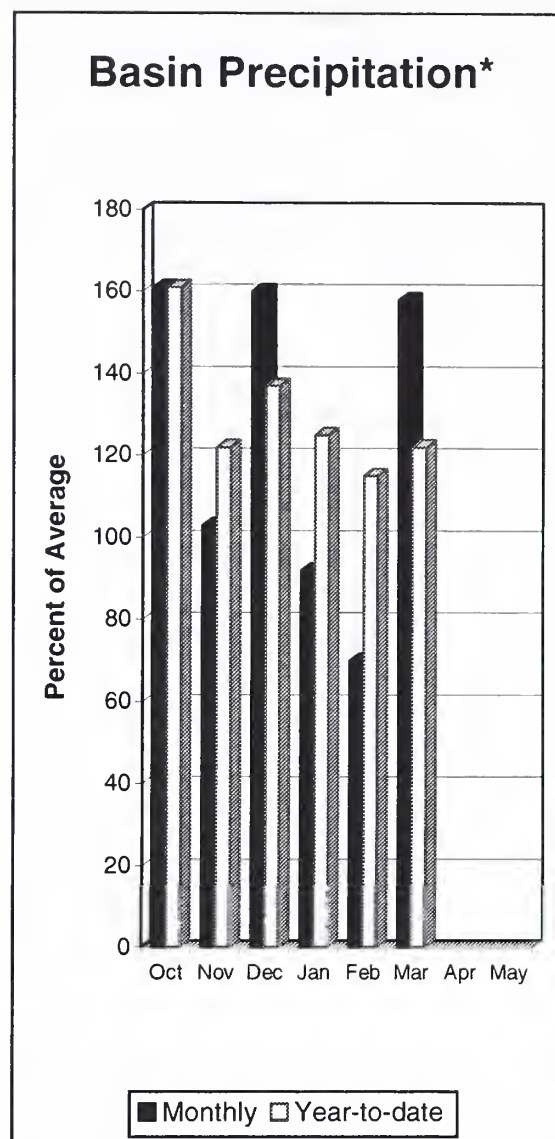
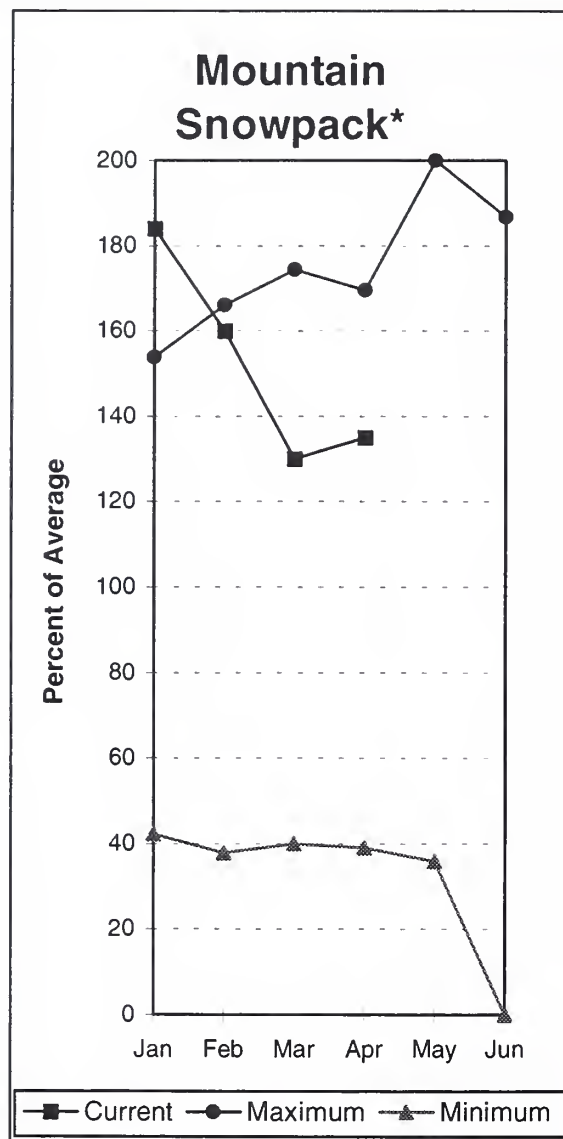
The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

## Bunchgrass Meadow SNOTEL Elevation 5000 ft.



## Okanogan - Methow River Basins



\*Based on selected stations

Summer runoff forecast for the Okanogan River is 148% of average; the Similkameen River, 148%, the Methow River, 150%, and Salmon Creek, 135% of average. April 1 snow cover on the Okanogan was 134% of average, the Methow; 144%, the Similkameen River; 126%, and Conconully Lake; 155% of average. March precipitation in the Okanogan-Methow was 158% of average, with precipitation for the water year remaining above average at 122%. March streamflow on the Methow River was 102% of average, 206% on the Okanogan River, and 148% on the Similkameen. Snow-water-content at the Salmon Meadows SNOTEL near Conconully, was 17.9 inches. Average for this site is 9.4 inches. Storage in the Conconully Reservoirs was 18,400 acre feet, which is 78% of capacity and 123% of the April 1 average.

*For more information contact your local Natural Resources Conservation Service office.*



# Okanogan - Methow River Basins

## Streamflow Forecasts - April 1, 1997

Forecast Point	Forecast Period	<<===== Drier =====		Future Conditions		===== Wetter =====>>		30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	Chance Of Exceeding * (% AVG.)	30% (1000AF)	10% (1000AF)	
SIMILKAMEEN near Nighthawk (1)	APR-SEP	1733	1965	2070	148	2175	2407	1399
	APR-JUL	1609	1830	1930	148	2030	2251	1304
	APR-JUN	1343	1554	1650	148	1746	1957	1113
OKANOGAN near Tonasket (1)	APR-SEP	1781	2207	2400	148	2593	3019	1623
	APR-JUL	1633	2016	2190	149	2364	2747	1466
	APR-JUN	1368	1679	1820	148	1961	2272	1233
SALMON CREEK near Conconully	APR-JUL	14.1	21	26	135	31	38	19.1
	APR-SEP	14.7	22	27	135	32	39	20
METHOW RIVER near Pateros	APR-SEP	1293	1362	1410	150	1458	1527	942
	APR-JUL	1205	1268	1310	150	1352	1415	873
	APR-JUN	1022	1080	1120	150	1160	1218	746

### OKANOGAN - METHOW RIVER BASINS Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage ***		
		This Year	Last Year	Avg
SALMON LAKE	10.5	8.4	8.3	8.0
CONCONULLY RESERVOIR	13.0	10.0	10.6	7.0

### OKANOGAN - METHOW RIVER BASINS Watershed Snowpack Analysis - April 1, 1997

Watershed	Number of Data Sites	This Year as % of	
		Last Yr	Average
OKANOGAN RIVER	24	126	134
OMAK CREEK	1	119	115
SANPOIL RIVER	0	0	0
SIMILKAMEEN RIVER	5	116	126
CONCONULLY LAKE	3	161	155
METHOW RIVER	5	117	144

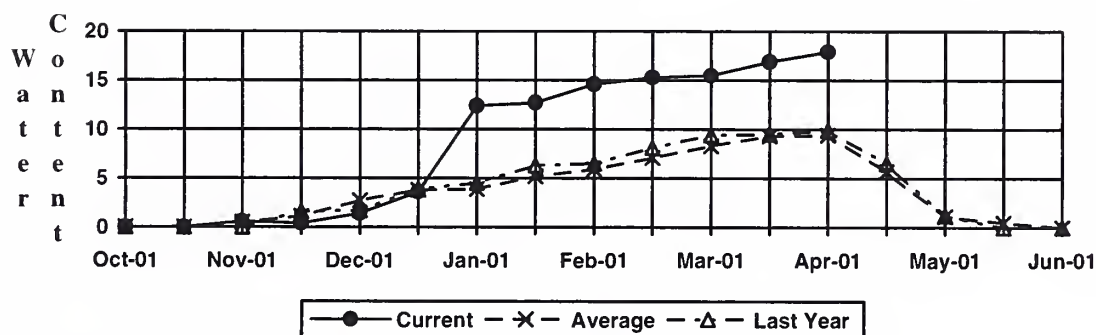
\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

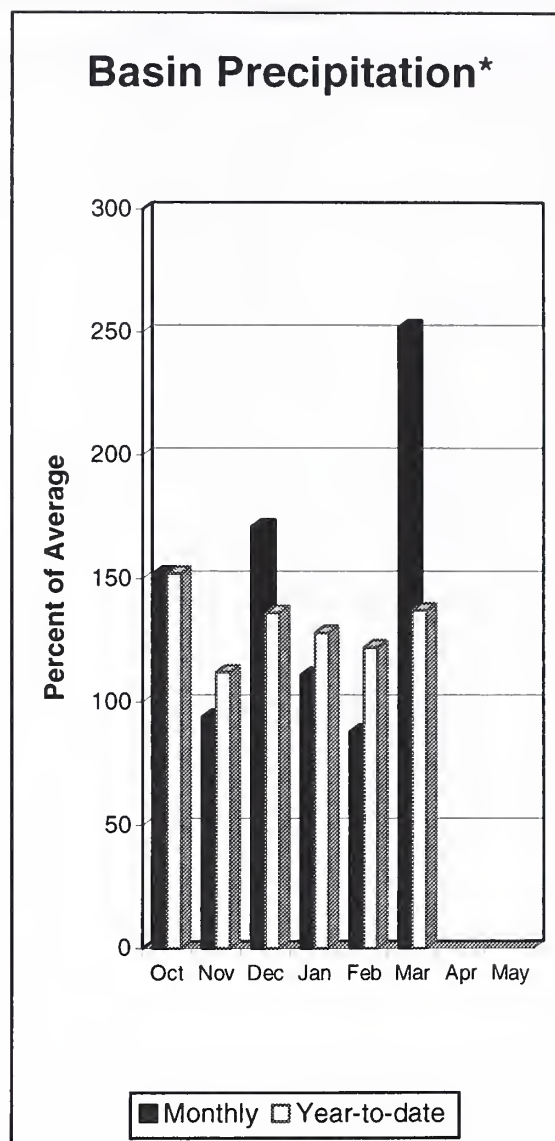
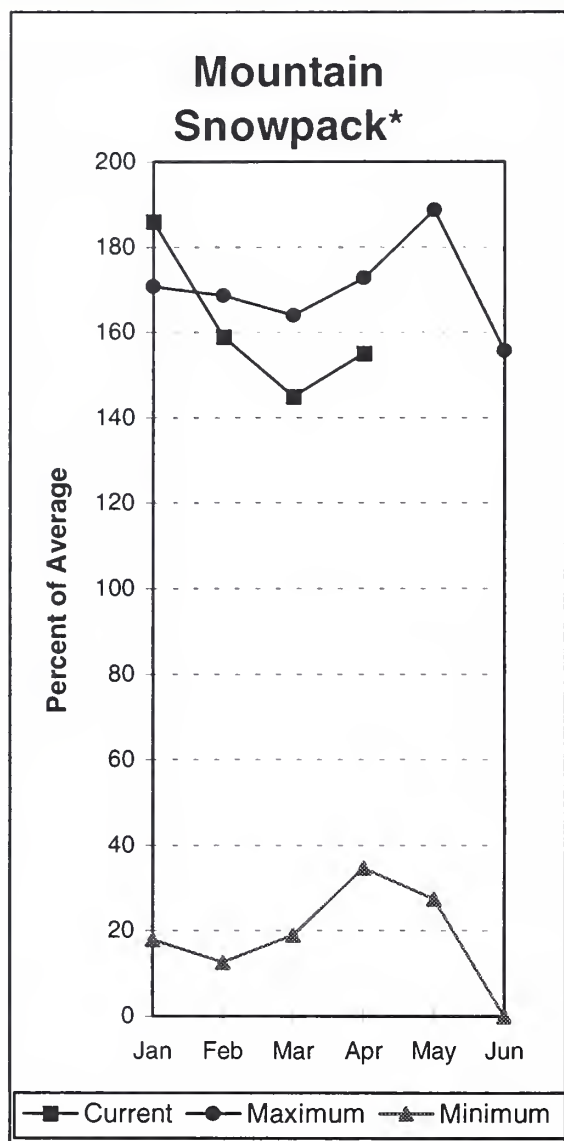
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.

## Salmon Meadows SNOTEL Elevation 4500 ft.



## Wenatchee - Chelan River Basins



\*Based on selected stations

Precipitation during March was 252% of average in the basin and 137% for the year to date. Runoff for the Entiat River is forecast to be 145% of average for the summer. The April-September forecast for the Chelan River is for 145%, for the Wenatchee River it is 148%, and 145% on the Stehekin. Icicle, Stemilt and Squilchuck creeks are all expected to be much above average this summer. March streamflows on the Chelan and Wenatchee rivers averaged 168% of normal. April 1 snowpack in the Wenatchee Basin was 154% of average. The Chelan Basin was 149% of average, Colockum Ridge was 124% and Stemilt Creek was 123% of average. Snowpack in the Entiat River Basin was at 223% of average. Reservoir storage in Lake Chelan was 189,800 acre feet or 89% of April 1 average and 28% of capacity. Lyman Lake SNOTEL had the most snow water with 82 inches of water. This site would normally have 56.9 inches.

For more information contact your local Natural Resources Conservation Service office.



# Wenatchee - Chelan River Basins

## Streamflow Forecasts - April 1, 1997

		<<===== Drier ===== Future Conditions ===== Wetter =====>>						
Forecast Point	Forecast Period	Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
CHELAN RIVER near Chelan	APR-SEP	1544	1625	1680	145	1735	1816	1160
	APR-JUL	1369	1438	1485	145	1532	1601	1024
	APR-JUN	1062	1132	1180	145	1228	1298	812
STEHEKIN near STEHEKIN	APR-SEP	1104	1161	1200	145	1239	1296	827
	APR-JUL	939	985	1016	145	1047	1093	701
	APR-JUN	702	749	780	145	811	858	538
ENTIAT RIVER near Ardenvoir	APR-SEP	305	320	330	145	340	355	227
	APR-JUL	276	290	300	146	310	324	206
	APR-JUN	222	236	245	145	254	268	169
WENATCHEE at Plain	APR-SEP	1582	1667	1725	145	1783	1868	1190
	APR-JUL	1451	1519	1565	146	1611	1679	1072
	APR-JUN	1168	1223	1260	146	1297	1352	864
WENATCHEE R. at Peshastin	APR-SEP	1904	2211	2420	148	2629	2936	1636
	APR-JUL	1734	2011	2200	148	2389	2666	1485
	APR-JUN	1405	1628	1780	148	1932	2155	1204
STEMILT nr Wenatchee (miners in)	MAY-SEP	142	168	186	135	204	230	138

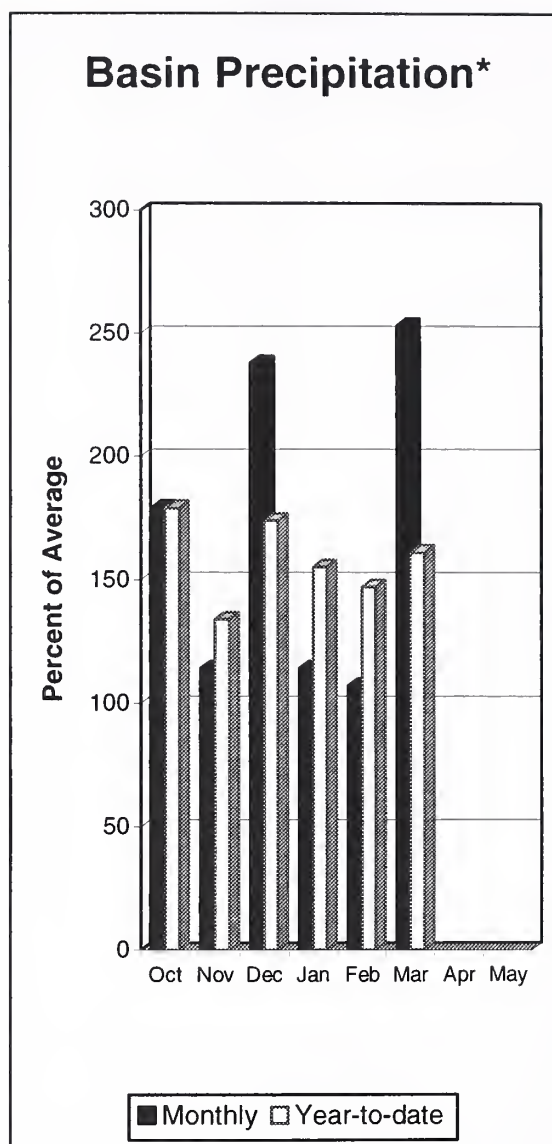
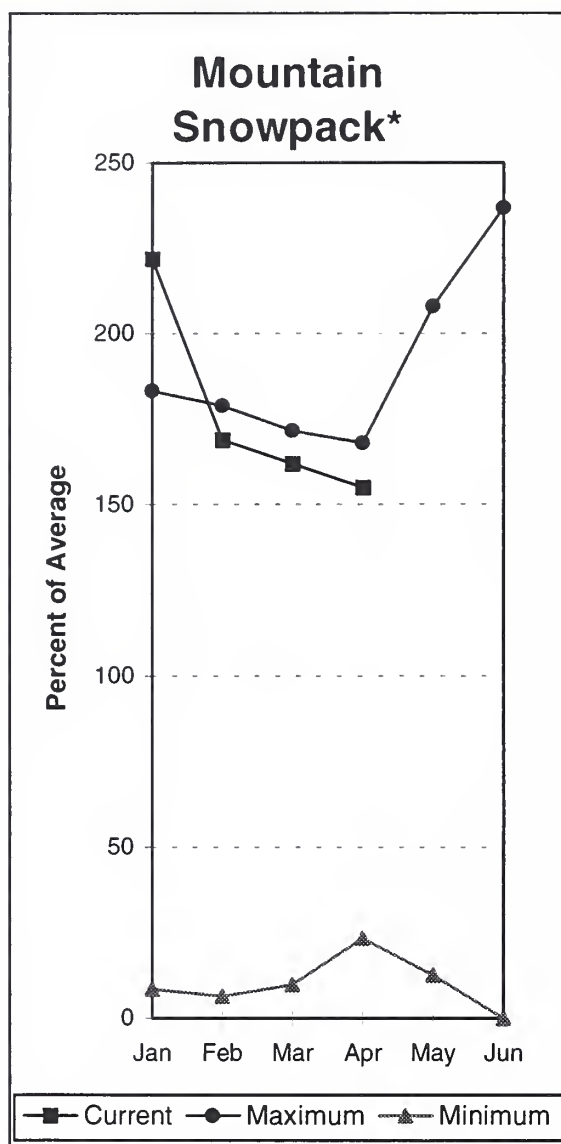
WENATCHEE - CHELAN RIVER BASINS Reservoir Storage (1000 AF) - End of March					WENATCHEE - CHELAN RIVER BASINS Watershed Snowpack Analysis - April 1, 1997			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
CHELAN LAKE	676.1	189.8	462.0	212.1	CHELAN LAKE BASIN	4	127	149
					ENTIAT RIVER	2	154	223
					WENATCHEE RIVER	13	166	154
					SQUILCHUCK CREEK	0	0	0
					STEMILT CREEK	2	142	123
					COLOCKUM CREEK	1	92	124

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

## Yakima River Basin



\*Based on selected stations

April 1 reservoir storage for the five major reservoirs was 727,900 acre feet, 98% of average. April 1 summer streamflow forecasts are for much above average in the Yakima Basin. Forecasts for the Yakima River at Cle Elum are for 149% of average; Naches River, 150%; the Yakima River near Parker, 153%; Ahtanum Creek, 152%; and the Tieton River, 147%. The Klickitat River near Glenwood is forecast at 168% of average flows this summer. March streamflows within the basin were; the Yakima River near Parker 192% of average; the Yakima near Cle Elum, 206%; and the Naches River at 187%. April 1 snowpack was 163% based upon 20 snow courses and SNOTEL readings within the Yakima Basin. Precipitation was 253% of average for March and 161% for the water year-to-date. Volume forecasts for the Yakima Basin are for natural flow. As such, they may differ from the U.S. Bureau of Reclamation's forecast for the total water supply available which includes irrigation return flow.

For more information contact your local Natural Resources Conservation Service office.

Yakima River Basin

Streamflow Forecasts - April 1, 1997

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
KEECHELUS LAKE INFLOW	APR-JUL	178	188	195	157	202	212	124
	APR-SEP	192	204	212	157	220	232	135
	APR-JUN	153	164	171	157	178	189	109
KACHESS LAKE INFLOW	APR-JUL	165	173	178	160	183	191	111
	APR-SEP	173	182	188	159	194	203	118
	APR-JUN	143	152	158	160	164	173	99
CLE ELUM LAKE INFLOW	APR-JUL	593	615	630	154	645	667	409
	APR-SEP	643	668	685	153	702	727	448
	APR-JUN	491	514	530	154	546	569	345
YAKIMA at Cle Elum	APR-JUN	1002	1048	1080	150	1112	1158	721
	APR-JUL	1180	1222	1250	150	1278	1320	832
	APR-SEP	1281	1328	1360	149	1392	1439	915
BUMPING LAKE INFLOW	APR-SEP	185	193	198	146	203	211	136
	APR-JUL	169	176	181	146	186	193	124
	APR-JUN	137	146	152	146	158	167	104
AMERICAN RIVER near Nile	APR-SEP	160	167	172	146	177	184	118
	APR-JUL	149	156	161	148	166	173	109
	APR-JUN	121	129	135	147	141	150	92
RIMROCK LAKE INFLOW	APR-SEP	325	340	350	147	360	375	238
	APR-JUL	276	287	295	148	303	314	200
	APR-JUN	218	231	240	148	249	262	162
NACHES near Naches	APR-SEP	1177	1220	1250	150	1280	1323	832
	APR-JUL	1059	1101	1130	150	1159	1201	755
	APR-JUN	899	946	977	150	1008	1055	651
AHTANUM CREEK nr Tampico (2)	APR-SEP	53	63	70	152	77	87	46
	APR-JUL	49	58	64	152	70	79	42
	APR-JUN	42	50	55	153	60	68	36
YAKIMA near Parker	APR-SEP	2881	2982	3050	153	3118	3219	1994
	APR-JUL	2611	2700	2760	153	2820	2909	1805
	APR-JUN	2282	2376	2440	153	2504	2598	1597
KLICKITAT near Glenwood	APR-JUN	170	179	185	168	191	200	110
	APR-SEP	213	226	235	168	244	257	140

YAKIMA RIVER BASIN Reservoir Storage (1000 AF) - End of March					YAKIMA RIVER BASIN Watershed Snowpack Analysis - April 1, 1997			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
KEECHELUS	157.8	124.2	137.9	110.0	YAKIMA RIVER	20	204	163
KACHESS	239.0	148.0	220.5	187.0	AHTANUM CREEK	2	181	146
CLE ELUM	436.9	302.7	371.0	290.0				
BUMPING LAKE	33.7	12.2	15.6	11.0				
RIMROCK	198.0	140.8	166.4	142.0				

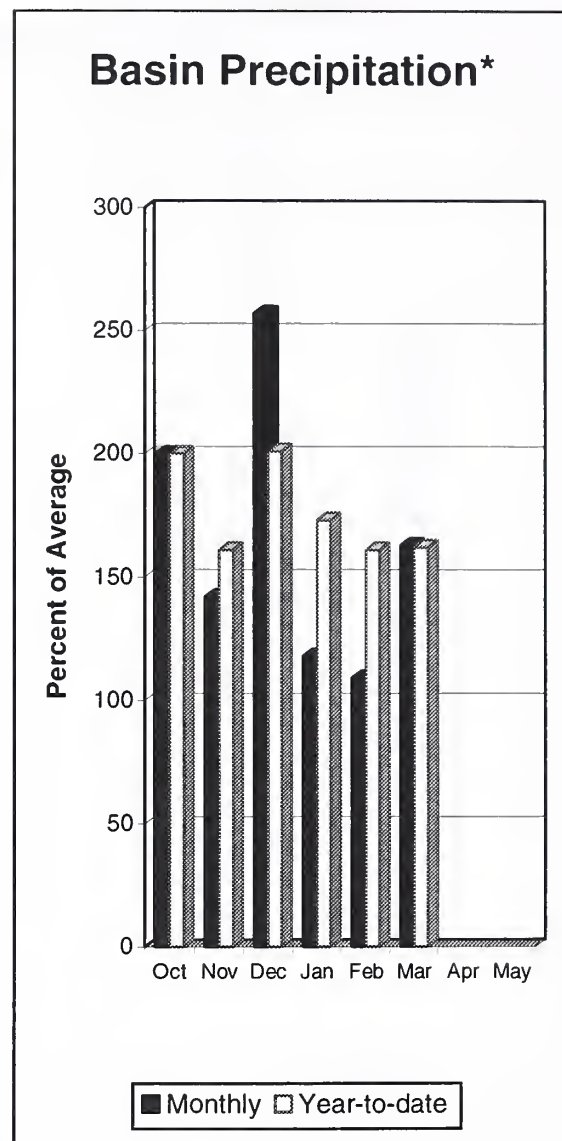
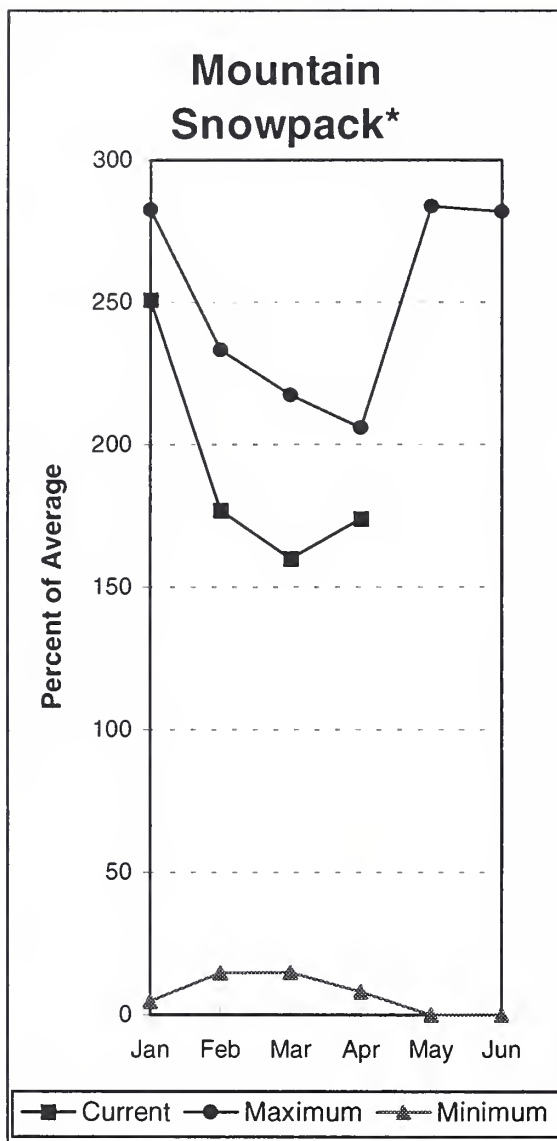
\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
(2) - The value is natural flow - actual flow may be affected by upstream water management.



## Walla Walla River Basin



\*Based on selected stations

March precipitation was 163% of average, bringing the year-to-date precipitation to 162% of average. April 1 snowpack was at 174% of average. The forecast is for 121% of average streamflow in the Walla Walla River for the coming summer, for the Grande Ronde at Troy, 118%, and 140% for Mill Creek. March streamflow was 362% of average for the Walla Walla River, 177% for the Snake River, and 214% for the Grande Ronde River near Troy. The Touchet SNOTEL site had 61.3 inches of snow-water-equivalent. The average April 1 reading for this site is 31.9 inches. High Ridge SNOTEL near Tollgate, Oregon contained 36.6 inches of water, compared to the April 1 normal of 24.4 inches.

For more information contact your local Natural Resources Conservation Service office.

# Walla Walla River Basin

## Streamflow Forecasts - April 1, 1997

		<<===== Drier ===== Future Conditions ===== Wetter =====>>						
Forecast Point	Forecast Period	=====		Chance Of Exceeding *		=====		30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
=====								
GRANDE RONDE at Troy (1)	APR-JUL	1059	1293	1400	115	1507	1741	1214
	APR-SEP	1182	1435	1550	118	1665	1918	1312
SNAKE blw Lower Granite Dam (1,2)	APR-JUL	28384	31765	33300	154	34835	38216	21650
	APR-SEP	32175	35974	37700	155	39426	43225	24360
MILL CREEK at Walla Walla	APR-SEP	18.0	22	24	140	26	30	17.1
	APR-JUL	17.7	21	24	140	26	30	16.9
	APR-JUN	17.5	21	23	140	26	29	16.7
SF WALLA WALLA near Milton-Freewater	APR-JUL	57	62	65	123	68	73	53
	APR-SEP	71	76	80	121	84	89	66

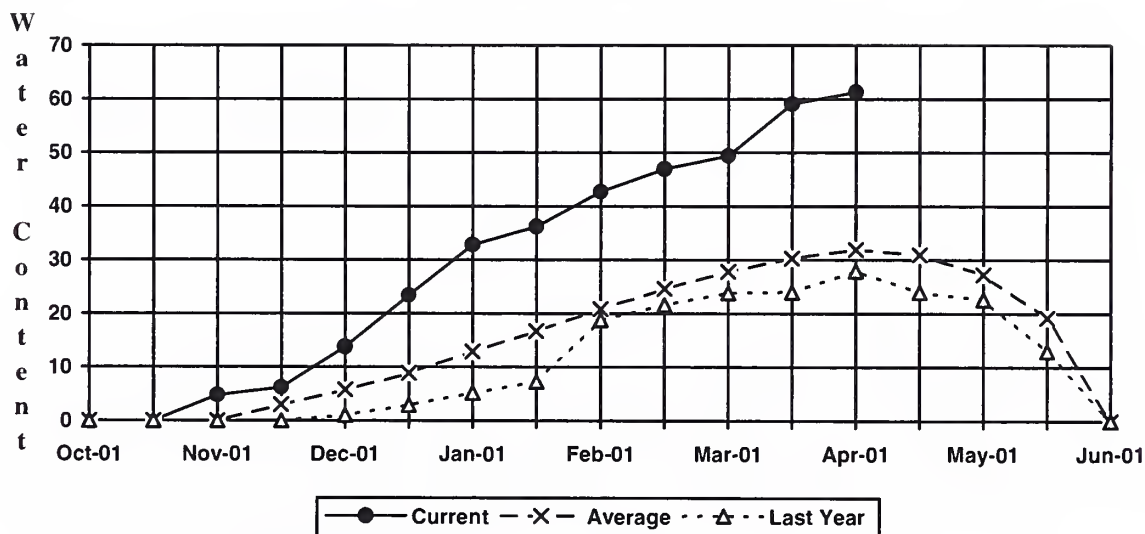
WALLA WALLA RIVER BASIN Reservoir Storage (1000 AF) - End of March					WALLA WALLA RIVER BASIN Watershed Snowpack Analysis - April 1, 1997			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					WALLA WALLA RIVER	2	216	174

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

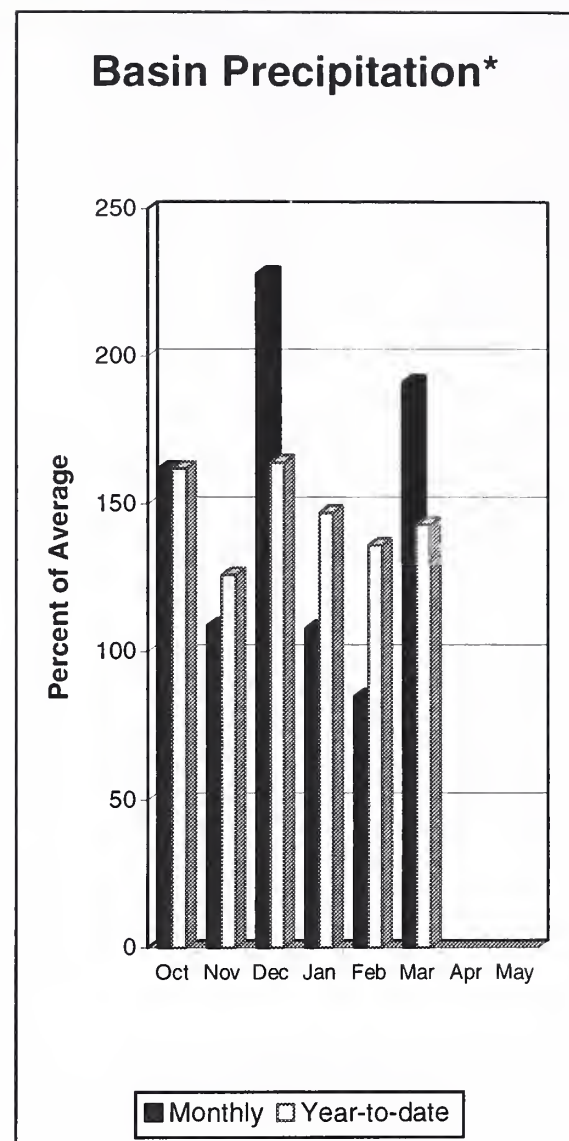
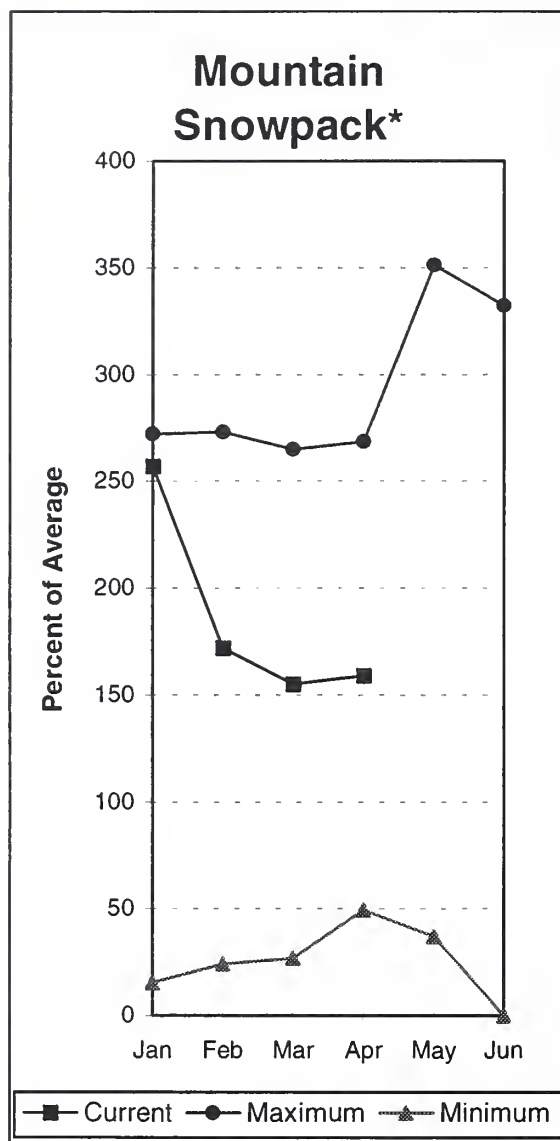
The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

## Touchet #2 SNOTEL Elevation 5530 ft.



## Cowlitz - Lewis River Basins



\*Based on selected stations

The forecast for summer runoff in the Lewis River Basin is 135% of average. The Cowlitz River at Castle Rock is forecast for 114% of average runoff. March streamflow for the Cowlitz River was 183% of average, and 168% for the Lewis River. March precipitation was 191% of average, 143% of average for the water-year. April 1 snow cover for the Cowlitz River was 146% and the Lewis River was 171% of average. The Paradise Park SNOTEL recorded the most water content for the basin and the state with 108 inches of water. Average April 1 water content is 62.1 inches.

For more information contact your local Natural Resources Conservation Service office.



# Cowlitz - Lewis River Basins

## Streamflow Forecasts - April 1, 1997

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	Chance Of Exceeding *		30% (1000AF)	10% (1000AF)	
LEWIS at Ariel (2)	APR-SEP	1346	1515	1630	135	1745	1914	1206
	APR-JUL	1143	1308	1420	135	1532	1697	1053
	APR-JUN	999	1154	1260	135	1366	1521	935
COWLITZ R. b1 Mayfield Dam (2)	APR-SEP	1731	2201	2520	128	2839	3309	1970
	APR-JUL	1521	1931	2210	128	2489	2899	1731
	APR-JUN	1300	1652	1890	128	2128	2480	1477
COWLITZ R. at Castle Rock (2)	APR-SEP	2090	2662	3050	114	3438	4010	2667
	APR-JUL	1823	2321	2660	114	2999	3497	2325
	APR-JUN	1555	1984	2275	114	2566	2995	1995
Klickitat near Glenwood	APR-JUN	170	179	185	168	191	200	110
	APR-SEP	213	226	235	168	244	257	140

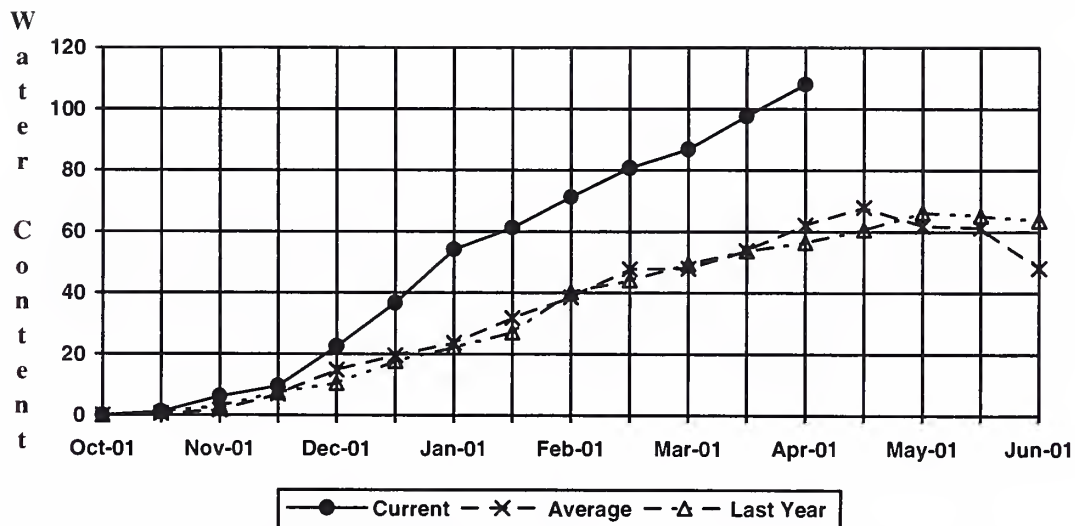
COWLITZ - LEWIS RIVER BASINS Reservoir Storage (1000 AF) - End of March					COWLITZ - LEWIS RIVER BASINS Watershed Snowpack Analysis - April 1, 1997			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					LEWIS RIVER	4	305	171
					COWLITZ RIVER	7	203	146

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

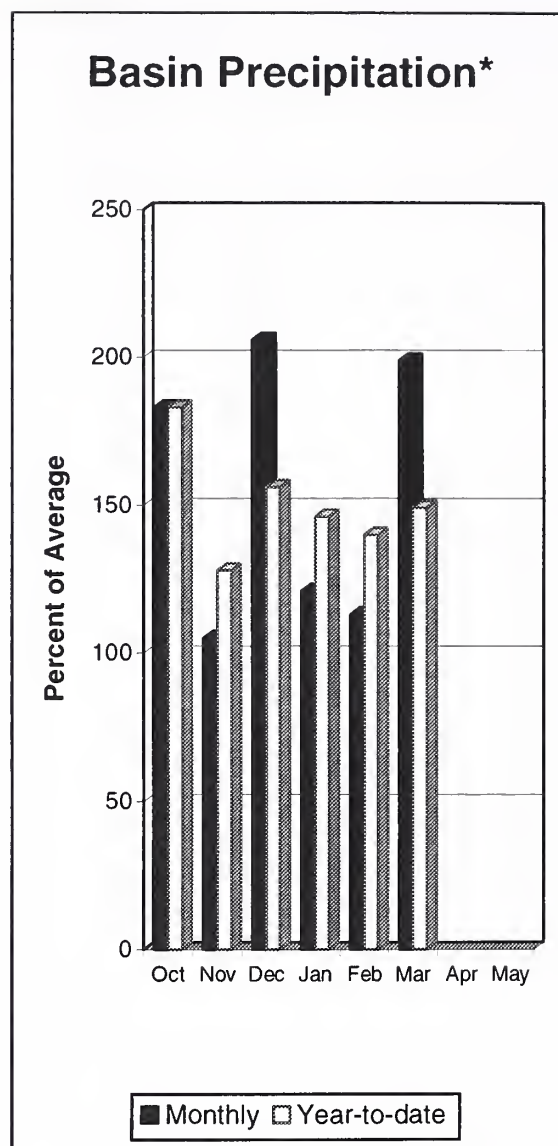
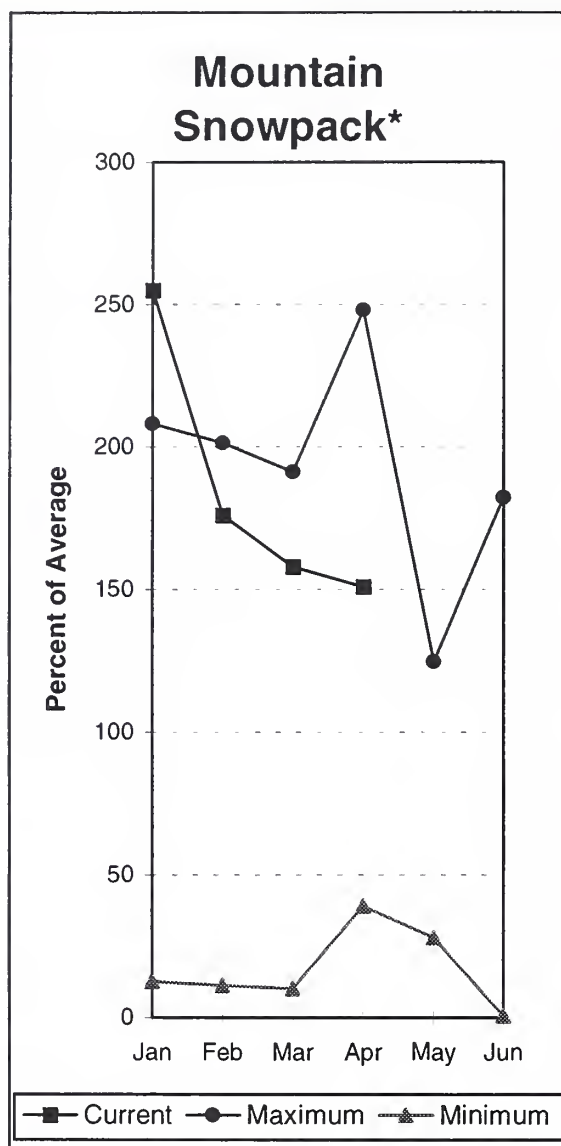
The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

## Paridise SNOTEL Elevation 5120 ft.



## White - Green River Basins



\*Based on selected stations

Summer runoff is forecast to be 132% of average for the Green River. The White River should also experience above normal flows this summer. April 1 snowpack was 142% of average in the White River Basin and 160% in the Green River Basin. Water content on April 1 at the Morse Lake SNOTEL, at an elevation of 5,400 feet, was 85.5 inches. This site has a April 1 average of 47.2 inches. March precipitation was 199% of average, bringing the water year-to-date to 149% of average for the basins.

*For more information contact your local Natural Resources Conservation Service office.*

# White - Green River Basins

## Streamflow Forecasts - April 1, 1997

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						
		=====		Chance Of Exceeding *		=====		30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
GREEN RIVER below Howard Hanson Dam	APR-JUL	290	320	340	132	360	390	257
	APR-SEP	325	355	376	132	397	427	285
	APR-JUN	264	291	310	133	329	356	234

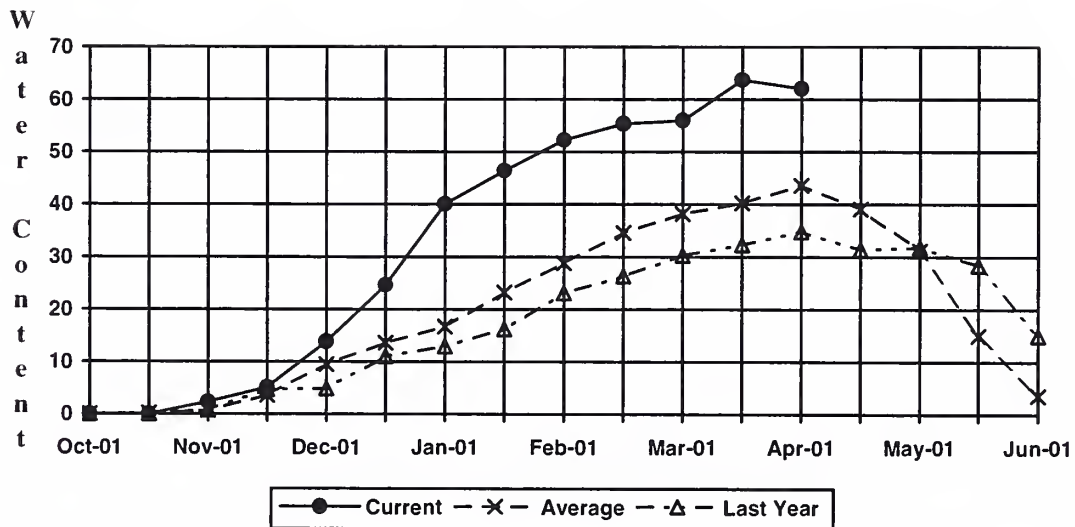
WHITE - GREEN RIVER BASINS Reservoir Storage (1000 AF) - End of March					WHITE - GREEN RIVER BASINS Watershed Snowpack Analysis - April 1, 1997			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					WHITE RIVER	3	178	142
					GREEN RIVER	7	313	160

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

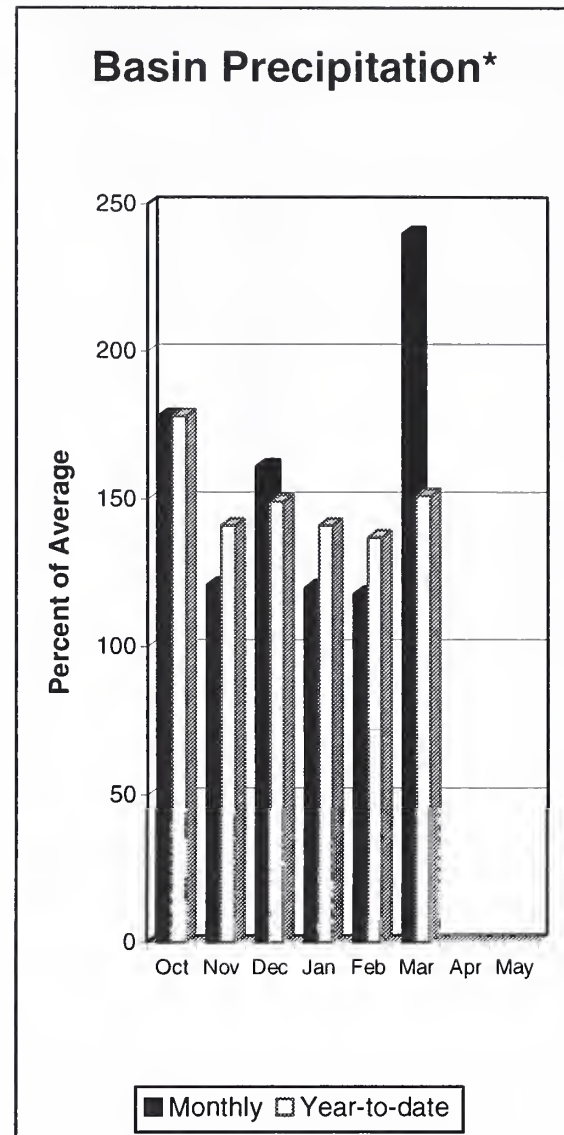
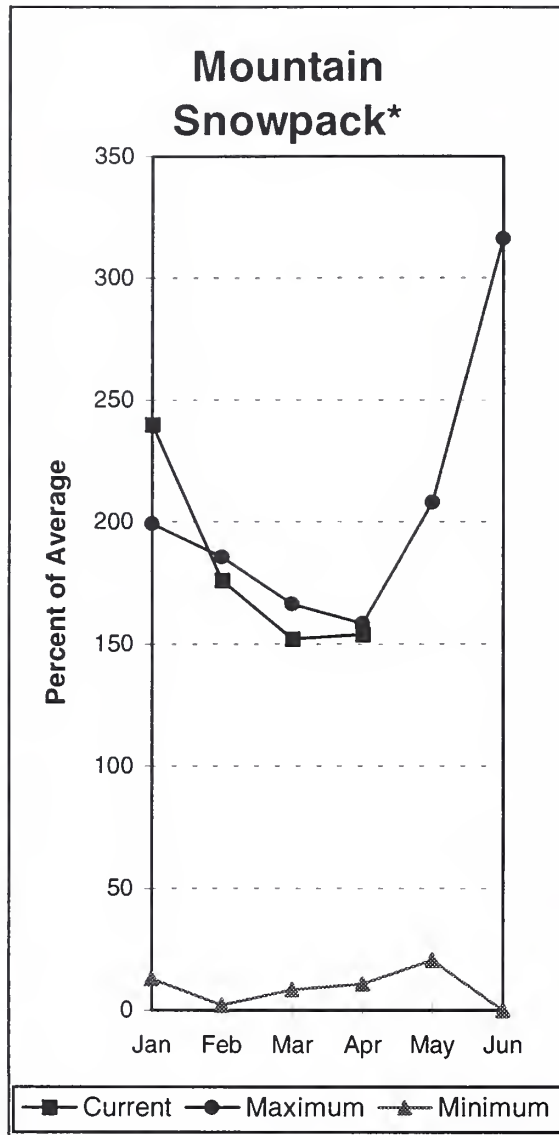
- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

## Stampede Pass SNOTEL Elevation 3860 ft.





## Central Puget Sound River Basins



\*Based on selected stations

Forecast for spring and summer flows are: 137% for the Cedar River near Cedar Falls, 132% for the Rex River, 129% for the South Fork of the Tolt River and 147% for the Cedar River at Cedar Falls. Basin-wide precipitation for March was 240% of average, bringing water-year-to-date to 151% of average. April 1 snow cover in the Cedar River Basin was 202%, the Tolt River Basin was 116%, the Snoqualmie River Basin was 145%, and the Skykomish River Basin was 152% of average. Stevens Pass SNOTEL, at 4,070 feet, had 68.6 inches of water content. Average April 1 water content is 42.3 inches.

*For more information contact your local Natural Resources Conservation Service office.*

# Central Puget Sound River Basins

## Streamflow Forecasts - April 1, 1997

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						
		=====		Chance Of Exceeding *		=====		30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
CEDAR RIVER near Cedar Falls	APR-JUL	92	100	106	138	112	120	77
	APR-SEP	101	110	116	137	122	131	85
	APR-JUN	81	89	94	138	99	107	68
REX RIVER near Cedar Falls	APR-SEP	34	37	40	132	42	45	30
	APR-JUN	28	31	34	134	36	39	25
CEDAR RIVER at Cedar Falls	APR-JUL	100	112	121	148	130	142	82
	APR-SEP	103	114	122	147	130	141	83
	APR-JUN	97	110	118	148	127	139	80
SOUTH FORK TOLT near Index	APR-JUL	17.4	18.8	19.8	130	21	22	15.2
	APR-SEP	19.9	22	23	129	24	26	17.8
	APR-JUN	14.4	16.0	17.0	130	18.0	19.6	13.1

### CENTRAL PUGET SOUND RIVER BASINS Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage ***		
		This Year	Last Year	Avg

### CENTRAL PUGET SOUND RIVER BASINS Watershed Snowpack Analysis - April 1, 1997

Watershed	Number of Data Sites	This Year as % of	
		Last Yr	Average
CEDAR RIVER	6	527	202
TOLT RIVER	2	581	116
SNOQUALMIE RIVER	5	317	145
SKYKOMISH RIVER	3	259	152

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

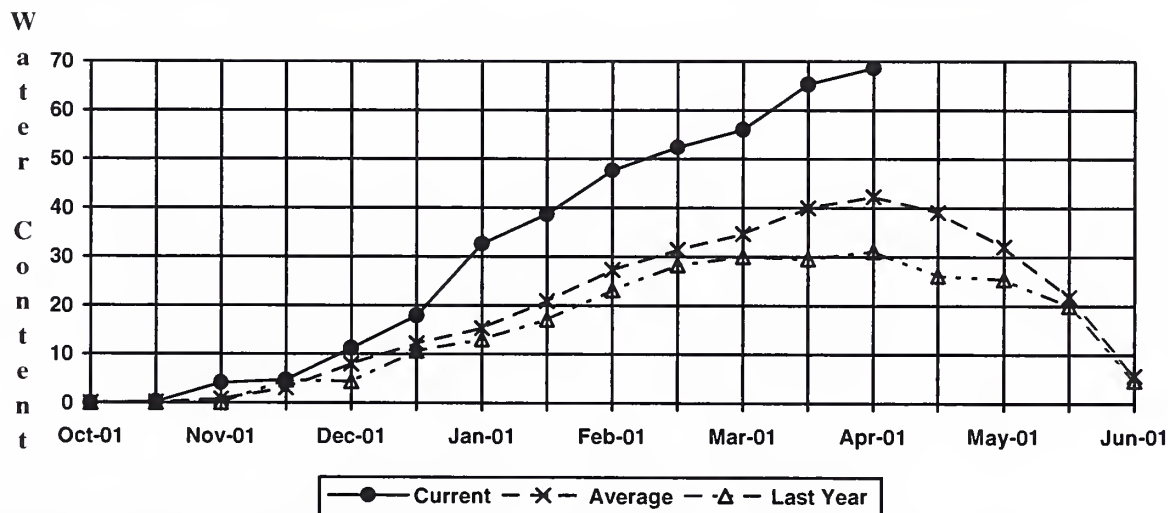
The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

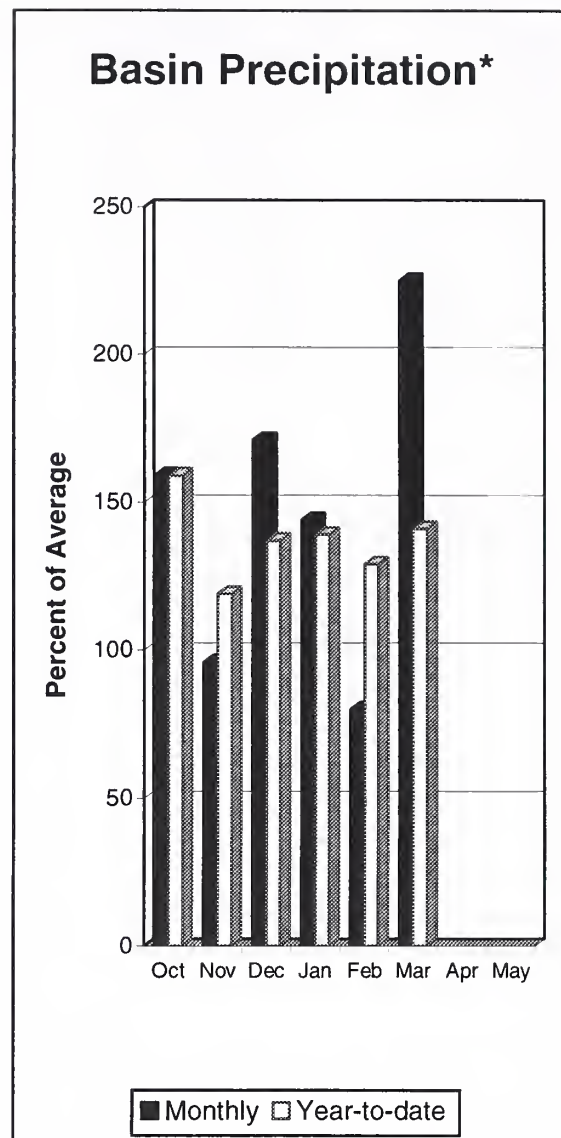
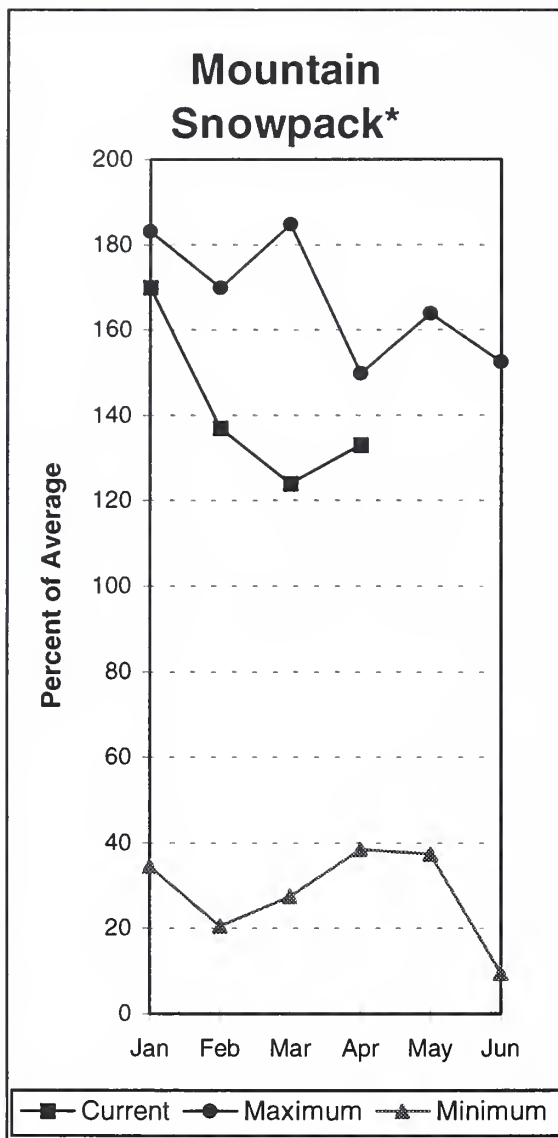
(2) - The value is natural flow - actual flow may be affected by upstream water

management.management.

## Stevens Pass SNOTEL Elevation 4070 ft.



## North Puget Sound River Basins



\*Based on selected stations

Forecast for the Skagit River streamflow is for 130% of average for the spring and summer period. March streamflow in the Skagit River was 180% of average. Other forecast points included the Baker River at 133% and Thunder Creek at 130%. Basin-wide precipitation for March was 225% of average, bringing water-year-to-date to 141% of average. April 1 snow cover in the Skagit River Basin was 148%, the Baker River Basin was 140% and the Nooksack River Basin was 108% of average. Rainy Pass SNOTEL, at 4,780 feet, had 56.4 inches of water content. Average April 1 water content is 38 inches. April 1 Skagit River reservoir storage was 247% average and 52% of capacity.

For more information contact your local Natural Resources Conservation Service office.



# North Puget Sound River Basins

## Streamflow Forecasts - April 1, 1997

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>						30-Yr Avg. (1000AF)
		=====		Chance Of Exceeding *		=====		
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
THUNDER CREEK near Newhalem	APR-JUL	274	289	300	130	311	326	230
	APR-SEP	399	414	425	130	436	451	328
	APR-JUN	168	183	194	130	205	220	149
SKAGIT RIVER at Newhalem (2)	APR-SEP	2481	2695	2840	130	2985	3199	2185
	APR-JUL	2080	2259	2380	130	2501	2680	1830
	APR-JUN	1606	1742	1835	130	1928	2064	1410
BAKER RIVER near Concrete	APR-JUL	1016	1075	1116	134	1157	1216	836
	APR-SEP	1292	1365	1415	133	1465	1538	1064
	APR-JUN	718	778	819	134	860	920	611

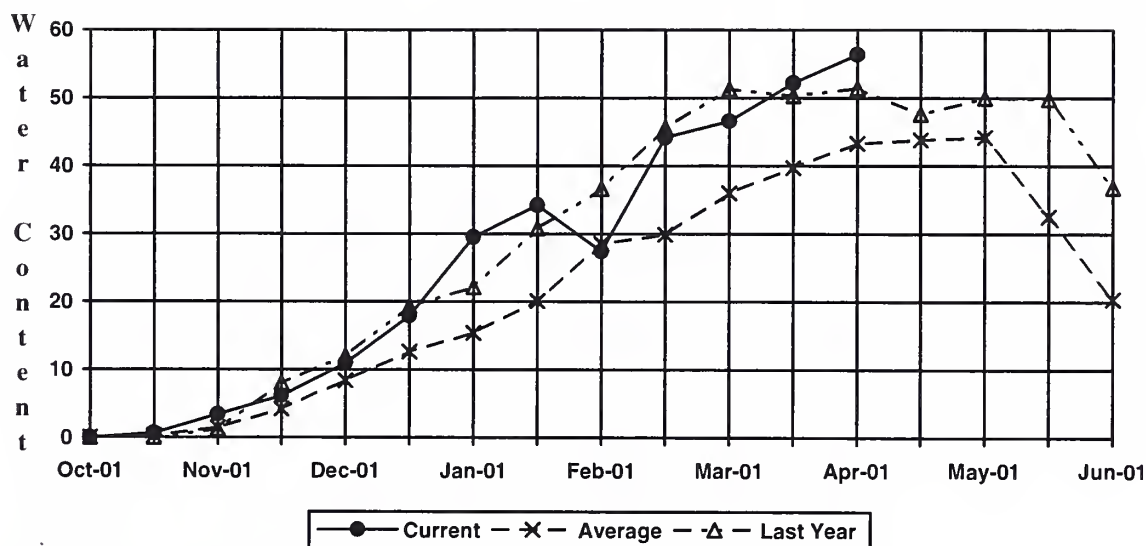
NORTH PUGET SOUND RIVER BASINS Reservoir Storage (1000 AF) - End of March					NORTH PUGET SOUND RIVER BASINS Watershed Snowpack Analysis - April 1, 1997			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
ROSS	1404.1	736.3	978.2	298.0	SKAGIT RIVER	12	156	148
DIABLO RESERVOIR	90.6	87.0	85.4	---	BAKER RIVER	3	417	140
GORGE RESERVOIR	9.8	8.1	7.9	---	NOOKSACK RIVER	2	442	108

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

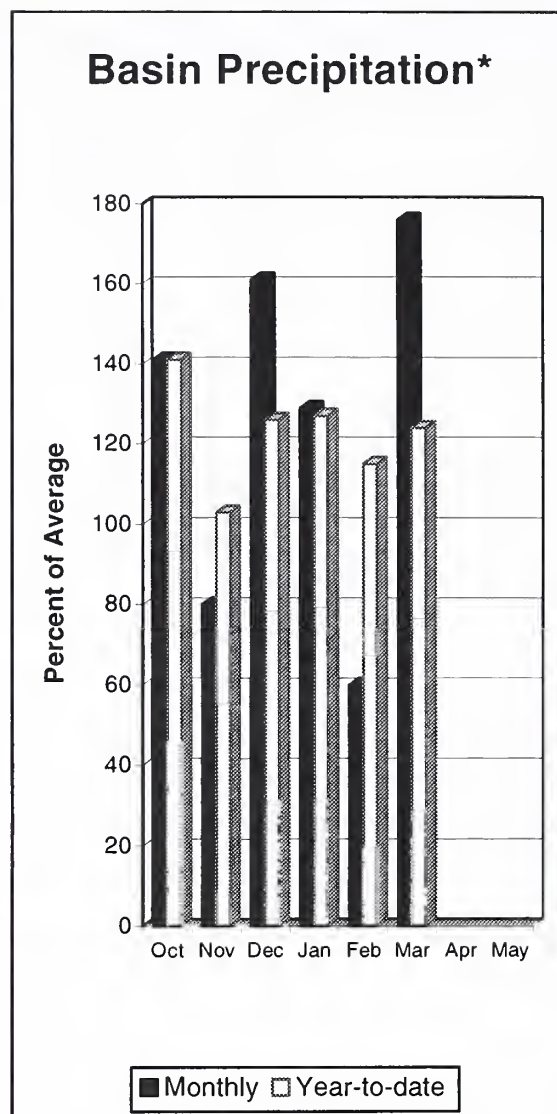
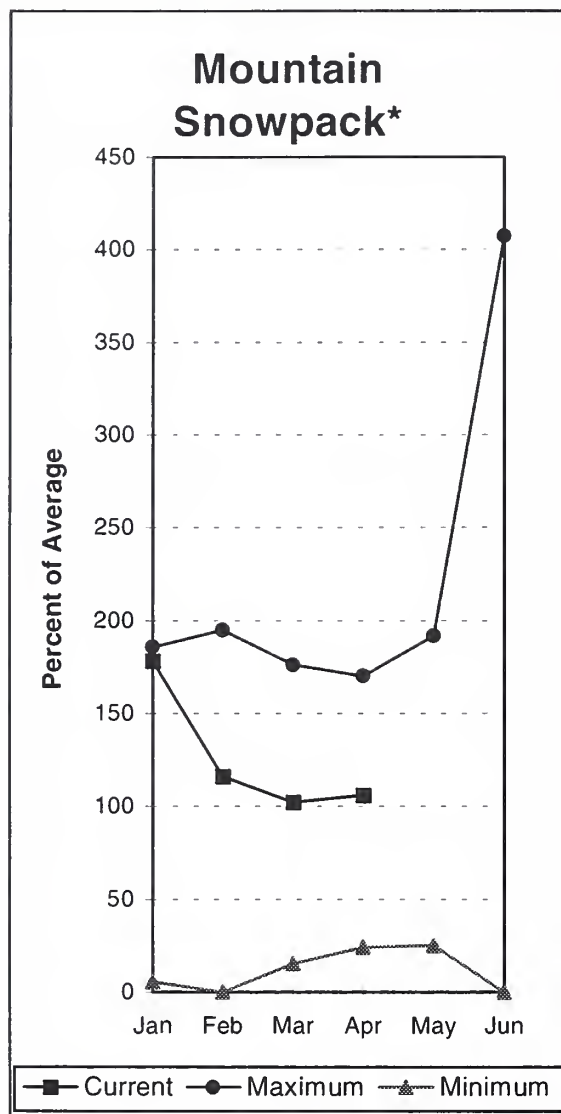
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 (2) - The value is natural flow - actual flow may be affected by upstream water management.

## Rainy Pass SNOTEL Elevation 4780 ft.



## Olympic Peninsula River Basins



\*Based on selected stations

April forecasts of runoff for streamflow in the Dungeness River Basin are 124% of average and 124% of average for the Elwha River. The Big Quilcene and Wynoochee rivers can expect near to above average runoff this summer also. March precipitation was 176% of average. Precipitation has accumulated at 124% of average for the water year. March precipitation at Quillayute was 20.67 inches, the thirty-year average for April 1 is 11.05 inches. Average April 1 snow cover in the Olympic Basin was at 106% of average. The Mount Crag SNOTEL near Quilcene had 32.8 inches of snow-water-equivalent on April 1. Average for this site is 31.5 inches.

For more information contact your local Natural Resources Conservation Service office.

Olympic Peninsula River Basins

Streamflow Forecasts - April 1, 1997

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						
		=====		Chance Of Exceeding *		=====		30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
DUNGENESS near Sequim	APR-SEP	171	182	189	124	196	207	153
	APR-JUL	140	149	155	124	161	170	125
	APR-JUN	102	111	117	124	123	132	94
ELWHA near Port Angeles	APR-SEP	571	607	632	124	657	693	510
	APR-JUL	473	505	526	124	547	579	424

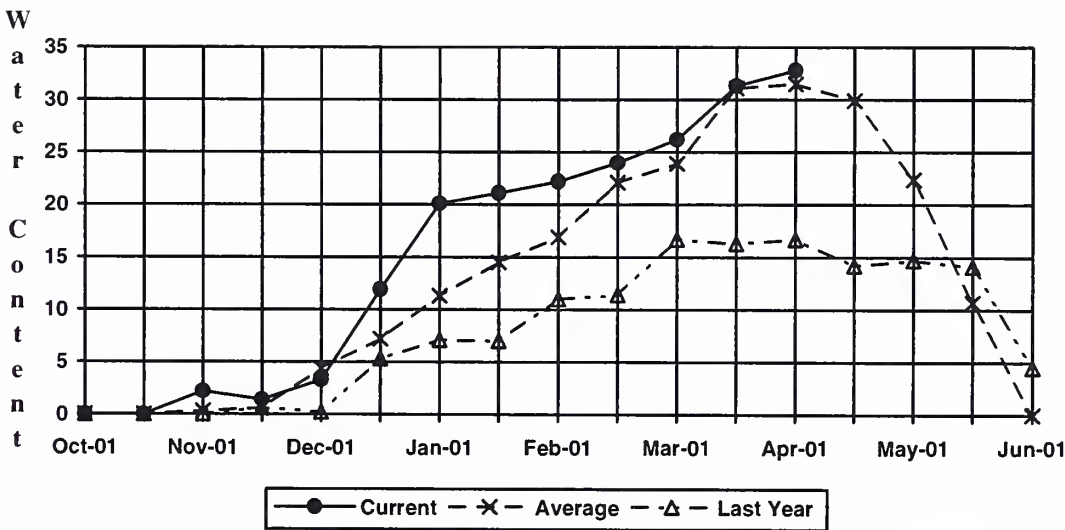
OLYMPIC PENINSULA RIVER BASINS Reservoir Storage (1000 AF) - End of March					OLYMPIC PENINSULA RIVER BASINS Watershed Snowpack Analysis - April 1, 1997			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					ELWHA RIVER	1	1070	111
					MORSE CREEK	1	310	125
					DUNGENESS RIVER	1	254	83
					QUILCENE RIVER	1	196	104
					WYNOOCHEE RIVER	0	0	0

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural flow - actual flow may be affected by upstream water management.

Mount Crag SNOTEL  
Elevation 4050 ft.







*Issued by*

**Paul W. Johnson**  
**Chief**  
**Natural Resources Conservation Service**  
**U.S. Department of Agriculture**

*Released by*

**Lynn A. Brown**  
**State Conservationist**  
**Natural Resources Conservation Service**  
**Spokane, Washington**

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**The Following Organizations Cooperate With the Natural Resources Conservation Service in Snow Survey Work\*:**

**Canada**

Ministry of the Environment  
Investigations Branch, Victoria, British Columbia

**State**

Washington State Department of Ecology Washington State  
Department of Natural Resources

**Federal**

Department of the Army  
Corps of Engineers  
U.S. Department of Agriculture  
Forest Service  
U.S. Department of Commerce  
NOAA, National Weather Service  
U.S. Department of Interior  
Bonneville Power Administration  
Bureau of Reclamation  
Geological Survey  
National Park Service  
Bureau of Indian Affairs

**Local**

City of Tacoma  
City of Seattle  
Chelan County P.U.D.  
Pacific Power and Light Company  
Puget Sound Power and Light Company  
Washington Water Power Company  
Snohomish County P.U.D.  
Colville Confederated Tribes  
Spokane County  
Yakama Indian Nation

**Private**

Okanogan Irrigation District  
Wenatchee Heights Irrigation District  
Newman Lake Homeowners Association

\*Other organizations and Individuals furnish valuable information for the snow survey reports. Their cooperation is gratefully acknowledged.



Rock Pointe Tower  
W. 316 Boone  
Spokane, WA

